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Price Reduction as a Stimulus

THE proposals made in the third report of the Council on Prices, Productivity & Industry under the chairmanship of Lord Justice Cohen have met with a mixed reception. The main proposal, that advantage should be taken of the success in halting inflation to effect reductions in prices so as to achieve higher output, has been criticised by, amongst others, the Federation of British Industries. The latter points out that it is one thing to reduce prices and thereby expand demand and output, but another to hold prices below their market level. The Committee's view that if wages can be restrained from rising too quickly, there should be a margin for reducing prices, has point for railways and other forms of transport, in which the wage element is a large part of the cost of providing the service. British Railways and London Transport badly need freedom from the constant series of wage demands which, when granted wholly or in part, have in recent years been a main cause of higher transport charges. These in turn have contributed to the higher cost of manufactures, apart from pricing public transport in some instances out of the market. Stable prices generally, the report rightly maintains, should result in wages restraint, provided that the trades unions realise the benefits of real as opposed to money incomes and refrain from further demands when prices remain stable or are reduced. The importance, moreover, of reducing prices to the minimum is well known to the industries supplying material to the railways, which function in a highly competitive market. The report has also been criticised for its view that whilst industry should try to cover the additional cost of replacement of assets out of profits, it is for question how far profits should be kept to provide the finance for additional growth, as that may prevent "price reductions desirable in the national interest." Many boards are fully aware of the importance of reducing prices but realise the need of their businesses for investment to meet increased demand for products, or to improve plant and equipment to meet competition at home or overseas.

Mr. H. N. Edwards

MR. H. N. EDWARDS, recently appointed Chairman of the board of Metropolitan-Cammell Carriage & Wagon Co. Ltd., has, apart from military service during the 1914-18 war, spent his entire career with the company and its predecessors. Since he began work, in 1910, with the Bristol Wagon & Carriage Works, he has seen many changes; the constituent companies have gradually expanded and amalgamated to form the present undertaking. As the organisation has grown, so too has the part played by Mr. Edwards. In his earlier years of responsibility he learnt much from the late Mr. A. S. Bailey, who became first Managing Director of the present company, and to whom he had been Liaison Officer. Since then he has accepted ever-increasing responsibility in the affairs of the company, until, in 1954, he became Managing Director. To follow in the footsteps of the late Sir Archibald Boyd is no mean undertaking, but there is no doubt that the long experience of Mr. Edwards, in the rolling stock industry in general and the company in particular, make him well fitted to the task. A biography of Mr. Edwards appears elsewhere in this issue.

The Late Sir Ronald Matthews

THE late Sir Ronald Matthews, whose obituary appears elsewhere in this issue, was Chairman of the London & North Eastern Railway Company for nine years. Succeeding the late Mr. William Whitelaw, he was the last person to hold that office. He began his career with Turton Bros. & Matthews Ltd., and maintained his connection with the family business until his death, at which time he was Chairman & Joint Managing Director. A director of more than 13 companies and Chairman, for over 17 years, of the Brush Group, he had a vigorous personality, with wide interests, particularly in the steel industry. When, in 1922, he was elected Master Cutler, he was the youngest ever to have been chosen. Sir Ronald Matthews was a doughty opponent of nationalisation before the passing of the Transport Act of 1947, and afterwards resumed his wide business activities. His family had a tradition of public service, which he faithfully carried on. He was intimately concerned with the civic affairs of Sheffield and was a prominent figure in Yorkshire's public life. He received his knighthood, in 1934, for his political and public service. His wide knowledge, sound judgment and public spirit will be sadly missed.

The Late Sir Maurice Brayshay

THE late Sir Maurice Brayshay, whose death we recorded briefly in our last week's issue, and a biographical note on whom appears on another page, had a notable career in the Indian Railway Service, in recognition of which he received a knighthood in 1934. Early in his career he played an important part in the construction of the Hardinge Bridge over the Lower Ganges, for which project he was Executive Engineer. During the 1914-1918 war the Indian Munitions Board took over the control and distribution of timber in that country, and Sir Maurice Brayshay was selected as Controller of Timber Supplies. In 1932 he succeeded the late Sir Ernest Jackson, as Agent for the Bombay Baroda & Central India Railway. While holding this office he acted, on two occasions, as Chief Commissioner of Indian Railways. He was a Past President of the Indian Railway Conference Association. Sir Maurice Brayshay retired from India in 1938. His 33 years of service on the railways of India exerted an influence over many years.

Incentives to Punctuality

THE competitions between the Regions of British Railways for the four shields for punctuality are useful incentives to better timekeeping. There is an annual award for the Region which shows the greatest improvement on its punctuality record compared with the preceding year in passenger and another for improvement in goods traffic. There are similarly two awards for absolute punctuality of passenger and goods trains. All passenger trains are included, but only goods trains in the express "C" and "D" groups. The rewarding of improvement is encouragement to the Region which has previously been at a disadvantage in timekeeping in matters such as a large amount of major civil engineering or electrification works in hand, or allocation of fewer diesel railcars than to other Regions. The Western Region this year won both shields for improvement. For absolute punctuality the Scottish Region secured the passenger and the Southern Region the goods train trophies. Sir Brian Robertson, Chairman of the British Transport Commission, presented the shields to Mr. J. R. Hammond, Mr. James Ness, and Mr. C. P. Hopkins, General Managers respectively, of the Western, Scottish and Southern Regions. Better timekeeping is urgently needed. It will be long before many of the improved services envisaged under the modernisation plan materialise. Until they do so, much goodwill will be lost if arrivals and deliveries are late.

Work Study Achievements

SOME of the achievements of the British Transport Commission Work Study Training Centre at Watford were outlined recently by Mr. A. G. Kentridge, Principal of the centre. A brief account is given on another page. A remarkable example of the work done is that relating to employment of 140 porters on 10 platforms at Reading General passenger station, British Railways, Western Region. Research showed that, on average, porters there were employed one-third of the time, with considerable rigidity of demarcation of duties as between the several grades. The team of researchers recommended a reduction of staff to 96, with more cleaning, and about two-thirds of time used. The rostering of porters so as to cover train working at a busy station is extremely complex. It does not follow that before the work study investigation—which took six men, with occasional additional staff, six months to complete—there was appreciable lack of efficiency. Other research has resulted in reduction of track maintenance gangs from seven to five; a 30 per cent cut in staff employed on signal maintenance; and reduction of handling costs at Parkeston Quay, Harwich.

More Good Public Relations Work

THE standard of leaflets, booklets and other matter issued by the several public relations departments of the nationalised transport undertaking, and not least of more than one Region of British Railways, has been as high recently as ever. A short notice appears on page 41 of an illustrated booklet "British Transport in 1958," published by the British Transport Commission last month simultaneously with its report, as done in previous years. Much is contained within the 32 pages. The account of what was achieved last year is in a restrained style, which will appeal to any intelligent reader. The technical and other developments on British Railways and the London Transport Underground and in other activities of the Commission are described at the right length. The many photographic illustrations and graphs are well reproduced. This kind of reading matter is often not valued or properly read when presented free. There is, rightly, a charge, but at 2s. the booklet is good value.

C.P.R. Reorganisation

ON July 1 the Canadian Pacific Railway set up four new regions in a coast-to-coast reorganisation of territorial administration. The existing eight districts have been replaced by four regions, having direct control over the operating divisions and reporting direct to headquarters in Montreal. The Atlantic Region, also with Montreal headquarters, covers the Dominion Atlantic Railway; Bay of Fundy Steamship Services; Brownville & Woodstock Divisions in New Brunswick and Maine; Farnham Division in Quebec and Vermont; Montreal terminals and the Laurentian Division. This latter has been extended to include the Montreal and Ottawa Sub-Divisions from Vaudreuil to Hurdman in the Ottawa Terminal Area, and the Winchester Sub-Division from Groveville to Vaudreuil. The Eastern Region, with headquarters in Toronto, covers: Smiths Falls (excluding Montreal and Ottawa Sub-Division from Hurdman East and Winchester Sub-Divisions from Grovehill to Vaudreuil); Trenton, Bruce, London and Toronto Terminals; Sudbury and Schreiber Divisions; Canadian Pacific Electric Lines, and the Great Lakes Steamships. The Prairie Region, with headquarters in Winnipeg, covers:—Fort William Terminals and Kenora, Winnipeg Terminals, Portage, Brandon, Regina, and Saskatoon Divisions; Moose Jaw Division (including the Altawan and Notukeu Sub-Divisions). The Pacific Region, with headquarters at Vancouver, covers:—Medicine Hat, Lethbridge (excluding Altawan and Notukeu Sub-Divisions), Calgary, Edmonton, Revelstoke, Vancouver, Kootenay, and Kettle Valley Divisions; the Esquimalt & Nanaimo Railway; the British Columbia Lake & River Service and the British Columbia Coast Steamship Service. The names of the officers in charge of the new regions are given in the Personal pages of the Railway News Section of this issue.

A Good Survey of Modern Railway Practice

BOOKS dealing generally with railways and intended for a wide readership are published today in large numbers. Few succeed in presenting so much accurate information clearly and succinctly, and with such well chosen and well-reproduced illustrations, as does "Modern Railways," by Mr. Cecil J. Allen, the subject of brief notice on another page. A major problem for the author of this kind of book is to ensure that the many aspects, practices on railways overseas, and new developments and techniques, which may be changing every day, receive adequate coverage, and to avoid a mere catalogue of facts. In this Mr. Allen has succeeded very well. His comments are pithy. He adduces facts to illustrate a point and its corollaries. In his admirable chapter on stations and their staffs, for instance, he outlines in two short paragraphs the problem of platform working, mentioning the relevant factors of long non-stop runs to avoid unnecessary platform occupation, and of the water troughs and means of keeping locomotive fires clean which facilitate such runs with steam traction. Not only general readers, but many who aspire to, or even have achieved, high positions on railways will find a great deal to interest and inform them.

New Station at Manchester London Road

ELECTRIFICATION of the Western Division main lines of British Railways, London Midland Region, is resulting in rebuilding of the 100-year-old station at Manchester London Road. The whole of the frontage is to be swept away. There will be a glass-fronted entrance, nine-storey office block, and spacious cafeteria and bars, shops, and kiosks. London Road will be the first major terminus in Britain to be fully reconstructed since the war. Demolition of the frontage is timed for the end of this month and the whole of the new station is to be completed in three years time. The station eventually will be served by electric trains of the Western Division to Crewe and beyond via Stockport and Styal besides those of the Manchester South Junction & Altrincham line (after its conversion to a.c.) and of the former Great Central line to Glossop and Sheffield, and also by some diesel-worked local services. The main object in planning the new station has been to segregate the pedestrian and vehicular circulation within the limitations of the site. The waiting area for taxis and a limited parking area for staff and private cars will be in a triangular area next to the office building. The carriageway on the north (former G.C.R.) side of the concourse will be eliminated.

Railway Instructional Films

ELSEWHERE in this issue we record the holding of the annual meeting at Oslo of the films officers of member railways of the International Union of Railways (U.I.C.). Scandinavia was an appropriate venue on this occasion, for it was at the Stockholm meeting of the U.I.C. Committees in

1947, that such meetings were first proposed. The intention was to produce technical films jointly by more than one administration, so achieving economy and making possible the exchange of views, on methods of production, by those responsible for such work on each railway. The intervening 12 years have seen much progress in development of technical films. The British Transport Commission films have received many awards. Instructional films are playing an increasingly large part in the modernisation plans of many railway systems. It is probably true to claim that in no country in Europe is better use being put to this method of instruction than in Great Britain, where the Commission has realised the important contribution that this modern technique of explaining technical and other developments can make in connection with staff education programmes.

British Railways Track Recording Coach

AS a result of trials conducted some years ago, a new design of track recording coach has been developed for British Railways. The vehicle can pinpoint and record the smallest of irregularities in rail track, and will be a valuable aid to railway engineers in making better use of manpower and materials for track maintenance. By a system of electrical measurements the coach verifies and records on a moving chart the width between rails, regularity of track curvature, and, by relating axle movement to a high-speed gyroscope, whether curved lines are banked to the right angle for express speeds. Measurements are made in such a way as to make them independent of the movement of the vehicle. The coach was developed by Elliott Brothers (London), Ltd., in conjunction with the British Transport Commission Research & Development Engineers. The vehicle to carry the equipment was designed and built by D. Wickham & Co. Ltd.

125 Years of Sulzer

MOST of the many visitors to the Sulzer town factory in Winterthur are given the opportunity of seeing the original building, dating from the time the present works was founded. The length of life of what is now Gebr. Sulzer A.G. seems somewhat indeterminate; the company is celebrating this year the 125th anniversary, but before 1834 the founder, Jacob Sulzer, already had a foundry and small machine shop outside the then restricted boundaries of Winterthur town. As far as railway interests are concerned, it is well known that Sulzer took a leading part in the development of the first line-service diesel locomotive in 1911-13 through its holding in the Gesellschaft für Thermo-lokomotiven, and because of its construction of the "thermo" portion. Yet the Sulzer railway connection goes even further back. There is, or was until recently, at Tweedmouth sheds in the North Eastern Region of British Railways, a Sulzer stationary diesel engine, installed in 1903 for pumping power, which worked regularly for well over 30 years and was subsequently used as stand-by power. The later history of Sulzer in relation to diesel traction, with substantial contributions from Winterthur, St. Denis, and from the London company, is well known. It has been continuous since 1911 apart from six years during and immediately after the first world war.

Brunel Exhibition at Paddington

THE exhibition organised by British Railways, Western Region, in the headquarters offices at Paddington Station last month to mark the centenary of the death of Isambard Kingdom Brunel was one of the best of this type of commemorative display. Brunel was Engineer of the Great Western Railway from its origins in 1833 until his death. Amongst the many personal items shown were notebooks, containing *inter alia* remarkable sketches, for the Royal Albert Bridge, Saltash, and other works, and a silver-gilt service medal presented to Brunel by the G.W.R. company and lent by his great-grandson, Sir Humphrey Noble. Many prints and models were well displayed with excellent explanatory notes. The centenary of the Saltash Bridge, perhaps Brunel's greatest single work, completed shortly before his death, was celebrated earlier this summer. No better site could have been chosen for the exhibition than Paddington Station, which he himself designed.

The Position on Indian Railways in June, 1959

IT was officially stated in June that Indian Railways were well on their way to achieve targets set in the Five-Year Plan. It is also particularly satisfactory to note that the setback in goods traffic during 1958 had been arrested, and that a marked improvement had begun in November. An important contributory factor in the situation was that by June, 1959, practically all the numerous bottlenecks in evidence during the First Five-Year Plan period had been eliminated. Another was the self-sufficiency drive securing an increase in the value of indigenous stores purchased by the railways from Rs. 63.2 crores (£47,400,000) in 1950-51 to Rs. 158.5 crores (£118,875,000) in 1957-58 and a corresponding easement of the foreign exchange position.

An outstanding development in the country since the days of the First Plan was the growth of annual wagon production from 6,000 to 20,000 today. No general-purpose and very few special types of wagon have been imported during the last two years, and India is now in a position to export wagons. No coaches have been imported for many years and even multiple-unit electric stock is now being manufactured in Calcutta. The Government's aim is to build its own electric and diesel units by about 1962, as well as almost all signalling equipment. Already the introduction of the new high-capacity bogie ore wagons, fitted with automatic central buffer-couplers, is proving that by their use mineral-train loads can be increased by about 70 per cent, thus saving valuable line capacity.

This was the state of affairs on Indian Railways when recently visited by Messrs. A. F. Goelot (Financial Analyst) and R. A. D. Loven (Mechanical Engineer) of the World Bank Technical Operations Department. The department's second team to visit India, it made a 4,500 mile tour within a fortnight, visiting the Mokameh Ganges Bridge, Chittaranjan Locomotive and the Integral Coach Factories, the Allahabad-Kanpur and Vijayawada-Gudur doubling works, the modernised Moghalsarai marshalling yard, the Calcutta area electrification, the Muri-Ranchi construction and many other railway activities. The team appears to have been impressed by what it saw, and is making its report to the World Bank with a view to negotiations for a further loan to the Indian Government.

E.A.R. & H. Changes Work Pattern at Ports

FAR-REACHING changes in the pattern of the hours of working—particularly overtime—at East African ports will be introduced on October 1 by East African Railways & Harbours. The changes result from recommendations made in the Parkin reports on working hours and conditions of employment at Mombasa, Tanga, Dar-es-Salaam, Lindi, and Mtwara. The first report was drawn up by Sir Ian Parkin with a committee. It was accepted by the Kenya Government which had asked for an inquiry after a deadlock at Mombasa between port employers and trade unions. The second report was drawn up by Sir Ian Parkin alone after the Tanganyika Government had invited him to examine hours and conditions at its ports.

Under the new system, the normal working week will be reduced from 45 hr. to 43 with a system of two equal shifts each having a 30-min. break period. At present there is a break for the first shift, but none for the second. At Mombasa, Dar-es-Salaam, and Tanga ports shifts from Monday to Friday will work from 7 a.m. to 11 p.m. A 30-min. break will be given in each shift. Normal working on Saturdays will be in two equal shifts from 7 a.m. to 6 p.m. At Lindi and Mtwara regular working will normally be limited to a single shift from 7 a.m. to 3 p.m. with a 30-min. break on Mondays to Fridays and 7 a.m. to 12.30 p.m. on Saturdays, but a second shift may be worked when required. Overtime conditions vary, but at all ports work done outside normal hours, on Sundays, and on gazetted public holidays will be treated as overtime and at higher overtime rates than those obtaining at present. At Mombasa and Dar-es-Salaam a third 7-hr. shift will be worked on Mondays to Fridays if required and labour is available. This will operate between 11 p.m. and 6 a.m. and will be drawn from fresh labour and supervision. If less time is required to finish work the second day shift can stay on up to three hours. The three-hr. overtime limit also applies to Saturdays. On Sundays and gazetted public holidays there will

be one shift from 7 a.m. to 3 p.m. with an extension of three hours to complete work. At Tanga up to three hours' overtime can be worked on Saturdays with labour from the afternoon shift. This will finish work at 9.30 p.m. but will have had a 30-min. rest period. On Sundays and gazetted public holidays one shift will be worked from 7 a.m. to 3 p.m. with a permitted extension of three hours. If no second shift is worked at Lindi and Mtwara up to three hours' overtime will be permitted from Mondays to Saturdays with a 30-min. break. On Sundays one shift will be worked from 7 a.m. to 3 p.m. including a 30-min. break, with a permitted extension of up to three hr. Overtime limitations are relaxed during the produce export season and may extend up to 4½ hr. per day on three successive days. Ships such as the B.I. ship *Mombasa* which call regularly may also work overtime up to 4½ hr.

In preparation for the new working hours the administration is overhauling canteen and other amenities for port workers at Mombasa. Two canteens are under construction and will incorporate self-service. Other canteens are being renovated. A programme already under way of extension of washing and toilet facilities is being accelerated. Improvements also are being made at Dar-es-Salaam and Tanga.

The hours during which the ports will be open for receipt and delivery of cargo by the public will not be altered, but overtime will not be charged for work performed during the dinner hour between 12 noon and 1 p.m.

British Transport Commission Traffic Receipts

BRITISH Railways passenger receipts during Period 7, the four weeks ended July 12, only slightly exceeded the corresponding figure for 1958, which is disappointing in view of summer weather which might have been expected to engender considerable excursion traffic. At £13,007,000 they compare well with those for the preceding period (£11,227,000), which were much below last year's figure. The big discrepancy between London Transport road services receipts in June/July of the current year and 1958 is the result of the bus strike last year which continued into the first few days of Period 7. The gratifying increase in ships' passenger receipts has continued.

	Four weeks to July 12, 1959		Incr. or decr.	Aggregate for 28 weeks		Incr. or decr.
	1959	1958		1959	1958	
	£000	£000	£000	£000	£000	£000
Passengers—						
British Railways ...	13,007	12,961	+ 46	70,513	70,526	− 13
London Transport:						
Railways	1,749	1,869	− 120	12,635	13,399	− 764
Road Services ...	4,318	3,272	+ 1,046	29,020	23,164	+ 5,856
Provincial & Scottish buses	5,357	5,295	+ 62	31,144	30,942	+ 202
Ships	933	868	+ 65	3,076	2,899	+ 177
Total Passengers ...	25,364	24,265	+ 1,099	146,388	140,930	+ 5,458
Freight, Parcels & Mails—						
British Railways:						
Merchandise & livestock	7,404	7,952	− 548	52,297	57,562	− 5,265
Minerals	3,316	3,262	+ 54	23,488	25,840	− 2,352
Coal & coke ...	7,672	9,041	− 1,369	61,681	70,702	− 9,021
Parcels, etc., by coaching train ...	4,075	4,055	+ 20	28,359	27,939	+ 420
Total Freight, British Railways	22,467	24,310	− 1,843	165,825	182,043	− 16,218
Others*	4,439	4,355	+ 84	29,260	28,975	+ 285
Total Freight, Parcels, & Mails	26,906	28,665	− 1,759	195,085	211,018	− 15,933
Total	52,270	52,930	− 660	341,473	351,948	− 10,475

* Road haulage, ships and inland waterways freight.

Railway merchandise receipts at £7,404,000 were an improvement on Period 6 (£7,360,000) but still below last year's figure. The improvement in mineral traffics, which at £3,316,000 exceeded the 1958 figure (£3,262,000) and the total for Period 6 (£3,252,000), appears to reflect renewed activity in the steel industry and heavy industry generally. The decline in coal class traffic is shown in receipts of £7,672,000, against £9,041,000 for Period 7 of 1958.

For rather more than one-half of the current year, the 28 weeks to July 12, receipts from the carrying activities of the British Transport Commission totalled £341,473,000, nearly £10.5 million less than for those for first 28 weeks of 1958, which in turn were £21.5 million less than traffics for these 28 weeks of the preceding year. The most disquieting features are the low level of merchandise and the decline in coal traffics, and there is a marked drop in the number of L.T.E. bus passengers.

PERCENTAGE VARIATION, 1959, COMPARED WITH 1958

	Four weeks to July 12	28 weeks to July 12
British Railways—		
Passengers	+ 0.3	—
Parcels	+ 0.4	+ 1.5
Merchandise & livestock	− 6.8	− 9.1
Minerals	+ 1.6	− 9.1
Coal & coke	− 15.1	− 12.7
Total	− 4.8	− 6.4
Ships (passengers)	+ 7.5	+ 6.1
British Road Services, Inland Waterways and Ships (cargo)	+ 1.9	+ 0.9
Road Passenger Transport, Provincial & Scottish ...	+ 1.1	+ 0.6
London Transport—		
Railways	− 6.4	− 5.7
Road services	+ 31.9	+ 25.2
Total	+ 18	+ 13.9
Aggregate	− 1.2	− 2.9

Central Transport Consultative Committee

THE report for the year ended December 31, 1958, to the Minister of Transport & Civil Aviation, Mr. Harold Watkinson, of the Central Transport Consultative Committee, of which Sir Ronald Garrett is Chairman, is concerned mainly with withdrawals of services. It makes some helpful suggestions. Much energy must have been expended to complete it only a fortnight after the end of the year concerned. It is a pity that the report could not have appeared earlier in the year when the matters with which it deals were being discussed in Parliament, in the daily Press, and elsewhere. It is dated January 14, 1959, but only on June 2 was it ordered by the House of Commons to be printed.

The work of the Central Committee and the Scottish, Welsh and (English) Area Transport Users' Consultative Committees increased considerably over that of any previous period, because of the growth in the winter of proposals by the B.T.C. to close lines and stations and withdraw services and in the number of representations made by members of the public, local authorities, and so on.

As to withdrawing services, the Central Committee was concerned last year mainly with passenger facilities. The questions involved, as the report rightly observes, are becoming more difficult. The cases still to come before it, " in which the economies so obviously outweigh the inconveniences " as they have done in the past, may be fewer, and in many cases " it will no longer be easy to set the inexorable logic of the Commission's economic situation against the real but imponderable loss of public facility." It is recognised that the situation is changing, as is evident in the increase in the number of private motorcars—which is all the more reason to consider carefully the interests of those who rely on public transport. The clash between these conflicting interests, of the commercial viability of the Commission on the one hand, and the travelling public on the other, is stated to be already inclined to take the form of a head-on collision. " The middle way most to be desired " the report adds, " would be to retain the services by putting them on a paying basis, either by reducing costs or by increasing revenue." But that possibility, surely, was fully explored by the Commission before the proposal was made to withdraw the services.

As to reducing costs, the report refers to the success attained through introduction of diesel traction. To increase traffic, so as to gain more revenue, the committee states that there must be a marked improvement in the amenities of railway travel. Diesel traction greatly increases the pleasure of travel, but it is stated that in matters such as the cleanliness of trains and of portering of passengers' baggage, standards could, and should, be raised. The Committee is stated to be in favour of higher maxima for passenger fares. " The present procedure under which the Commission seeks additional charging powers is stated to be cumbersome; the Commission should be freed

as much as possible from control of this kind, subject only to such essential safeguards as may still be necessary." The report adds that "the time may soon come when, if any particular body of transport users wants to have transport which can only be provided at a loss or under special difficulty, whether by road or rail, it will be provided only at a special charge which is high enough to cover the cost, for the days are now gone when it can be assumed that losses in one period, or by one kind of operation, can invariably be carried by profits made in another. In the overall operation of the British Transport Commission there are now no profits which can be relied upon for this purpose."

As a result of the report on the proposed withdrawal of the train service on the Lewes to East Grinstead branch (the "Bluebell Line") of the Southern Region, it was found that the method used by the B.T.C. for assessing savings to be obtained through withdrawal was partly based, according to the Central Committee report, "on theories of accountancy which did not give Area Committees a sufficiently clear picture. Nor did these figures convince the public that the line which it was proposed to close was uneconomic, and could not, by competent management, be made to pay." A new method of estimating and stating the economies to be derived from withdrawal of a passenger or goods service, or both, was drawn up by the Central Committee and accepted by the B.T.C., and is now used in submitting proposals to consultative committees. The report emphasises that what impresses Area Committees, in submissions from objectors to withdrawals, is the exposition of "undue hardship which may fall upon people . . . deprived of a transport facility, and not an attack on the accuracy of the Commission's figures." The time taken for proposals for withdrawals of services to come before the Central Committee for confirmation has been cut from nine or ten months to some 14 weeks, if no complications arise.

In suspending passenger trains without complete suspension of the service, a distinction is rightly made between mere timetable alterations, and far-reaching changes which may cause hardship. The Commission has agreed that committees should have the opportunity of considering the latter before they take effect, in the same way as they consider complete withdrawals of facilities. The Central Transport Consultative Committee feels that reductions in the number of uneconomic stopping trains, which have been effected by Regions, go further to achieve economies than does the closing of branches, as they cause little inconvenience to the travelling public and facilitate operation of goods and express passenger trains. As to semi-fast diesel trains, the point is made that if wayside stations are kept open and such trains stopped there, when traffic does not justify separate stopping trains, the semi-fast trains cease to offer the advantage of speed. The efforts of the Southern Region to increase and revise on an even-interval basis steam passenger services on some rural lines on which electric or diesel traction is not yet feasible, are praised, as helping to arrest the drift of passengers away from the railway, and—an important consideration—to preserve goodwill until new methods of traction can be provided. Poor timekeeping by main-line trains in 1958 is ascribed to modernisation works in progress and to ageing steam locomotives. The Central Committee records its disagreement with the preference on the part of most Regions for tight schedules as a stimulus to effort by the staff to keep time. The London Midland Region is commended for its decelerations, as affording "realistic" timings.

The report regrets the persistence of complaints as to the cleanliness of trains, and suggests that "a greater effort could be made to maintain a standard of excellence in the coaching stock used, particularly in the Continental boat trains, from which many overseas visitors get their first and last impressions of Great Britain."

The closing in 1958 of the Midland & Great Northern Line is stated to be justified, and the prompt handling of the matter under the new accelerated procedure commended: the Area Committee concerned were notified in mid-June, 1958, of the Commission's intentions and were formally notified of proposals in September. The Central Committee confirmed on November 25 the Area Committee recommendations for closure. The suspension during the winter of the Newhaven/Dieppe service is shown to be fully warranted by its heavy losses during these months, by the decision of the French authorities to suspend their part of the service, and by the existence of other surface routes to the Continent.

A Bad Half-Year for British Railways

(By a correspondent)

DURING the first six months of 1959 the erosion of freight train traffic continued remorselessly. In 24 weeks to June 14, our railways originated only 110,022,000 tons of traffic, about 10,969,000, or 9 per cent, less than in 1958. As last year's volume of tonnage was 31,410,000, or 11.5 per cent, below 1957 and 46 million tons, or 15 per cent, beneath the peak year 1953, the railway position is indeed precarious. For the 24 weeks in question, freight train revenue amounted to £119,074,000, a decrease of £14,775,000, or 11 per cent, from 1958. The downward trend did not change at the end of the half-year. In four weeks to July 12, freight train revenue fell by £1,863,000, or 9 per cent. These decreases came on top of a 10 per cent loss of £29,414,000 for the whole of 1958, which helped to raise the railway operating ratio to the uncanny height of 110 per cent.

A review of railway results since 1948 proves that the 1958 industrial recession was not the main cause of the present crisis. In their first year the nationalised railways carried 56 million tons of high-rated merchandise; year after year the tonnage dwindled to 37 million last year. A third of the initial tonnage was lost and the decrease continued at the rate of about 5 per cent in the first six months of the present year. Increases in freight rates raised merchandise receipts to a peak of £111 million in 1954, but they dropped by 17 per cent to £92 million last year and in the first 28 weeks of this year declined by another £5 million, or 9 per cent.

There was an opposite trend in mineral traffic. Between 1948 and 1956 tonnage rose from 59 million to 66 million. Then came a decrease of a million tons in 1957, followed by a fall of 18 per cent to 53 million tons last year. In 24 weeks of 1959 forwardings were 23,174,000 tons, a decrease of 3,226,000 tons from 1958, or 12 per cent. The largest mineral receipts were £53.5 million in 1957. Last year's receipts were down 16 per cent to £44.8 million and there was a further fall of £2.4 million, or 9 per cent, in 28 weeks of this year.

On the contrary coal production is definitely on the down grade. Output was lower in 1958 by 7.8 million tons, or 3.5 per cent. In 29 weeks of this year to July 25 production fell again by 5.2 million tons, or more than 4 per cent, below last year's low level. The inability of the National Coal Board to produce and sell more coal, either for home consumption or export, cripples railway transport. In 1948 about 158 million tons of coal and coke were put on rail.

By 1953 forwardings reached the upward limit of 175 million tons, only to shrink to 153 million tons in 1958, a decrease of 12.5 per cent. Paradoxically, between these years revenue from coal and coke rose from £109 million to £122.2 million, or by 12 per cent. In 1958 the average revenue from a ton of coal was 15s. 11d. and a wagon load furnished a revenue of £9 10s. 9d., or 7s. more than a wagon of merchandise provided.

Retribution for these heavy imports on coal traffic, which is cheap to work, came quickly. In 24 weeks of 1959 the tonnage of coal and coke was only 69,898,000 tons, a decrease of 6,874,000 tons, or 9 per cent, from 1958.

In the same period receipts from coal and coke dropped by £7,652,000, or over 12 per cent. In four weeks to July 12 there was a further loss of £1,369,000, or 15 per cent. It begins to look as though the N.C.B. and the railways in union may have priced their undertakings out of business.

To move the scanty traffic offering in 24 weeks to June 14, the railways worked 8,359 million ton miles, 751 million, or 8 per cent, less than in the same weeks of 1958. The table below shows the Regional decreases in tons by thousands and in ton miles by millions.

Region	*Tons* (000)		*Ton miles (millions)*	
	Decrease	Per cent	Decrease	Per cent
London Midland	2,905	8	257	8
Western	1,910	9	98	6
Southern	112	4	19	5
Eastern	519	3	104	6
North Eastern	3,324	12	161	13
Scottish	2,201	14	114	14

The Eastern Region clearly had the easiest passage. In four weeks to June 14 it originated 19,000 more tons of merchandise and 33,000 more tons of minerals, but lost 12,000 tons of coal. On balance it forwarded 39,000 more tons of freight and worked 656,000 more ton miles, breaking for the first time this year the sequence of four weeks' decreases in traffic and movement in all areas.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of Correspondents)

Railway Manufacturing Activities

June 2

SIR,—Having reference to the very excellent leading article which appeared under the above heading in your May 22 issue, I would like to point out that there is one further important factor which has a great bearing on the effect of the British Transport Commission policy upon the private wagon building industry and to which you did not make reference.

Before nationalisation, approximately half of the railway wagons carrying mineral traffic on British lines were privately owned, and belonged to the various colliery companies, the steel manufacturers, the coal merchants and factors, and those companies who specialised in letting wagons to these various users on simple hire. Under these circumstances, although the various railway groups had their own manufacturing facilities and employed them, if in any year they produced in their own shops their own requirements, the private builders had still numerous other owners to whom they could turn, and did turn, successfully for substantial orders. Now that all the wagons, with a few exceptions which are not numerically large enough to make any difference, are in the hands of the B.T.C., then if they pursue any policy which means that they have no orders to place outside their own organisation, the private builders have no other customers in this country of any magnitude to whom they can turn for work to form a basis on which they can build up their export trade.

In other words, full use of the B.T.C. shops today must have a far more devastating effect upon the export trade of railway rolling stock than an exactly similar policy did have before the war.

I feel that this fact supports very strongly the last sentence of your article in which you pointed out that the policy adopted by the B.T.C. is of greater importance from the national viewpoint at the present time than any adopted by its predecessors could have been in the past.

Yours faithfully,

RUSSELL BAILEY
Managing Director

Charles Roberts & Co. Ltd.,
Horbury Junction, Wakefield

Diesel and Electric Traction

June 2

SIR,—I am grateful to your correspondent, Mr. W. Sergeant of Montreal, for putting me right on the subject of U.S.A. operating statistics in your May 29 issue, but I was quoting from Mr. R. Bell, who appears to have been wrong. Regardless of the actual weight of the train, it remains a fact that if the "average" locomotive consists of 2.58 units, giving 3,750 h.p. and weighing in the region of 300 tons, then the "Deltic" would be capable of doing the same work over a wide range of conditions. Obviously it could not do so where starting tractive efforts of the order of 100,000 lb. are called for.

What needs to be realised is that the governing factor always should be the adhesive weight and the locomotive should be brought down to the lowest practicable figure. The electric does that. The "Deltic" approaches the ideal, but the ordinary diesel-electric locomotive spends its working life carrying about anything up to 300 tons of superfluous weight.

In the same issue of your journal we learn that an investment by the Canadian Pacific Railway of £70 million on introduction of diesel traction is effecting an annual saving of £17 million. This figure so outstanding that it makes it difficult to understand why, when the first large diesel locomotive was supplied to Canada in 1927, it took 20 years before the Canadians stopped building ponderous steam locomotives. It would be equally interesting to know how the figures are arrived at, what the standard of comparison is, and why there is not a mile of modern electrification in the whole country.

Also published in your May 29 issue is a description of a U.S.S.R. diesel-electric locomotive of 3,000 h.p. Yet on page 620 it is stated quite clearly that "the maximum power at the wheels is limited to 2,315 h.p." From the point of view of power this heavy, complicated, and extremely costly machine ranks below the new electric locomotives of British Railways, Southern Region, or the Co-Co electric locomotives operating over the Pennines. It has half the power of recent French 80-ton locomotives. The Russians, who pioneered diesel-electric traction some 40 years ago, are clearly turning out some mpressive machines, but it is still necessary to appreciate the limitations of the diesel as well as its unquestioned virtues.

Yours faithfully,

L. IRVINE-BROWN

Tilston, Malpas, Cheshire

Southern Region Electrification

June 5

SIR,—British Railways, Southern Region, has announced that with the completion of phase 2 of the electrification to the Kent Coast, the off-peak journey time from London to Folkestone will be cut from 111 to 80 min. Even before 1928, there were 80 min. trains at off-peak hours from London to Folkestone, hauled by a modestly powered 4-4-0 steam locomotive. These trains were made up of some eight corridor coaches and a Pullman car.

A feature of publicity as to railway modernisation today is the tendency to imply that new and improved standards are being set. In the case of the off-peak timing from London to Folkestone, the new electric services, according to the "South East Report," will be no better on the overall time compared with the pre-war steam service. The "Report," while not deliberately misleading, suppresses the fact that 30-year-old timings will be reintroduced.

Yours faithfully,

R. WILSON

54, Fernside Road, Poole, Dorset

U.S.A. Railway Wagon Loadings

June 12

SIR,—The American railroads have the sense to say exactly what they are doing from month to month throughout the year. Their latest bulletin of May 20 reports a modest degree of progress. In 19 weeks to May 9 wagon loadings numbered 10,151,610—an increase on 1958 of 1,120,920, or 11 per cent, but a decrease from 1957 of 2,613,600, or nearly 12 per cent. This year's total included 4,734,930 box wagons, of which fully a fifth were used for moving a record volume of grain. The loading of 378,376 covered hopper wagons also set up a record for the period of the year—25 per cent over 1958.

Flat wagons were in great demand, 346,730 loadings being almost a third above last year's figure. Close on 40 per cent of the "flats" carried road trailers. This new road/rail service is expanding. In the week ended May 9, 8,419 "flats" were loaded with traffic originated by road carriers.

In 19 weeks of this year, bituminous coal output was 4 per cent higher than in 1958, and 81,780, or 4 per cent, more railway wagons were loaded. Coal tonnage shipped at Lake Erie ports was 58 per cent above last year's level, but overseas export coal in the first four months of the year was down 29 per cent. Owing to a partial revival of the steel industry, ore and coke moved in quantities about 60 per cent above 1958, but 20 per cent below the 1957 level.

That all is not well with the American economy is shown by a fall of 11 per cent in the volume of export and coastal freight, apart from coal and coke, passing through all U.S. ports in the month of April. That meant a drop in the number of railway wagons handled of 8,380 to 68,660. On balance the situation in the U.S.A. is improving, though in April there was an average daily surplus of over 25,000 railway wagons. A year ago the surplus was 124,000; and the railroads are now getting more work done by a stock of 1,637,400 serviceable wagons, about 4 per cent less than they employed last year. On May 1 they had 45,780 new wagons on order and were reducing the percentage of wagon stock under repair, though at over 8 per cent the ratio seems too high.

Yours faithfully,

Clacton-on-Sea R. BELL

THE SCRAP HEAP

Prickly Problem

A hedgehog with a poor sense of direction, wandered out of the woods and derailed 11 wagons of a freight train, ripped up 100 yd. of track, and closed a branch line and goods yard for the day. During his morning stroll the hedgehog slipped between points on the branch from the Doncaster to Dinnington line leading to Maltby Main Colliery yard, near Rotherham, Yorkshire. The points jammed. The only casualty : An unnamed hedgehog of no fixed address.—*From the " Daily Mail."*

Watch Your Step

When a diesel train of the Victorian Railways stopped on a bridge over the MacAllister River before arrival at Maffra Station, an elderly couple, both with poor eyesight, assumed that the station had been reached and stepped out of the coach. The lady got out first. When the husband asked how far down the step was, he received no reply, and, stepping out, found himself in 3 ft. of water. His wife fell into the middle of the river, which is 20 ft. deep. She was rescued by the driver of the train, Driver Arthur Gron, who has been recommended for an award by the Royal Humane Society. Nobody suffered serious harm.

Award for 1,000 Suggestions

Since 1927, Mr. John Drayton, an engine driver, of British Railways, Western Region, Running & Maintenance Depot, Pontypool Road, Mon., has submitted over 8,000 suggestions under the former Great Western Railway and British Railways' Staff Suggestions Scheme, no less than 1,000 of which have been accepted and received awards.

At Paddington Station, on August 6 to recognise this accomplishment, he had luncheon with Mr. J. R. Hammond, General Manager, Mr. E. J. Larkin, Director of Work Study, British Transport Commission, and Chairman of the Commission's (H.Q.) Staff Suggestions Committee and members of the Western Region Staff Suggestions Committee, and was presented with an inscribed silver cigarette casket. Mr. Hammond made the presentation.

Half of Mr. Drayton's 1,000 successful suggestions have been on locomotive improvement, but a large number of them have concerned direction signs, station name signs and warning notices. The smallest sum he has been awarded was 5s. for his first, which concerned the erection of a notice board for the display of excursion handbills in Newport and the largest, 37 guineas, for an idea involving signalling.

In the Van of Success

A bull born in a wagon at Penrith, British Railways, London Midland Region, four years ago, when its mother was on her way by train from Edenbridge, Kent, to Cairnbrogie, Aberdeenshire, won the beef shorthorn prize at the Great Yorkshire Show. The animal's name is Bapton Northward Bound.

Selling the " Bluebell Line "

A price of £34,000 asked by the British Transport Commission for part of the disused " Bluebell Line " [of the Southern Region] was accepted by the Lewes-East Grinstead Railway Preservation Society. The organisation was set up at a meeting at Haywards Heath. The section is four-and-a-half miles of winding track between Horsted Keynes and Sheffield Park. The station at Sheffield Park, described as a good example of a railway building of the 1880s, will be a museum for rolling stock and veteran tramcars. The line, which runs through bluebell dells, was closed a year ago because it was losing £33,000 a year. There were 35 people at the meeting and Mr. R. Gingell, the treasurer, said the society possessed £89 5s. A leaflet soliciting membership has been sent to 750 executives of railway manufacturing companies and 250 in British Railways. They are offered one sleeper or two of the chairs which hold the line in place for £1, or a gradient post for £5. Mr. John Leroy, the chairman, said the price of the whole line from Horsted Keynes to Culver Junction would be prohibitive. The society hopes to open its portion of the line with an old-fashioned engine and rolling stock.—*From " The Daily Telegraph."*

Mr. J. Drayton receiving the silver cigarette casket from Mr. J. R. Hammond. On the left is Mr. R. L. Charlesworth, Assistant to General Manager, and Mr. H. E. A. White, Running & Maintenance Officer, Western Region; and on the right Mr E. J. Larkin

Radio Set Thrown From Train

The objects which passengers throw from trains, despite notices requesting them not to throw out articles which may injure men working on the line, have seldom included wireless sets. An aircraftsman was reported recently to have thrown a radio set from a Basingstoke to Waterloo train. It landed in a bush 100 ft. from some workmen. He was fined £2.

Belated Protest

(*Last year the Festiniog Railway made a profit of* £201)

A.V.D., your cheerful poet,
Writing on the fifth of June,
May be naïve and not know it,
But he nearly made us swoon.

In his chatty little jingle
Apropos the narrow gauge,
He has set our blood a-tingle
Made us Fairlie steam with rage.

A.V.D. alas, distorted
" Peterborough," 16th May,
When the latter had reported
How a railway line could pay.

" Peterborough's " acclamation
Of the one-time under-dog
Was a kindly approbation
Of his friend's Festiniog.

But, for shame! a substitution
Tantamount to blackest sin
Caused Festiniog's exclusion:
A.V.D. said " Tal-y-llyn."

Tickled T.R. types at Towyn
Thought this was the greatest sport
But you should have heard the rowin'
'Midst the maddened men at " Port."

Although *Prince* joined in the stricture
Taliesin had to laugh.
(After all, he'd had his picture
In *The Daily Telegraph.*)

Checking facts (and well we know it!)
Is a job we all detest
But the erring scrap heap poet
Should believe that it is best.

A.V.D. should not be pitied
But must be implored to pause
Little slips like he committed
Sometimes start off major wars.

A.F.P.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

S.R. Metre to Broad Gauge Conversion

A recent statement by the Minister of Railways announced that the three short sections of metre-gauge line serving the port of Masulipatam on the Bay of Bengal about 300 miles north of Madras are to be converted to 5 ft. 6 in. gauge. The estimate for their conversion has already been sanctioned and the work will be completed under the second Five-Year Plan. They form a star-shaped little trio centred upon Gudivada, namely, Gudivada-Masulipatam, Gudivada-Bezwada and Gudivada-Bhimavaram and connect at Bezwada with both the metre-gauge line from Guntakal and the 5 ft. 6 in. gauge Calcutta-Madras trunk line. Rising mineral and other traffics to Masulipatam have made conversion advisable, as Bhimavaram like Bezwada is also on the 5 ft. 6 in. system.

WESTERN AUSTRALIA

Refreshment Facilities at Perth Station

Tenders have been called for the first stage in a programme of extensive alterations to the refreshment rooms on Perth Station. The present bar and dining rooms are to be enlarged and modernised and both will have access from the street as well as from the station platforms. The new dining room will have three times the present accommodation, whilst the new bar will be longer and much more spacious. Both will be equipped with modern facilities. Room has been made for these improvements through the transfer last September, of the telephone and telegraph offices, from Perth Station to an automatic telephone exchange at East Perth.

VICTORIA

Withdrawal of Goods Service

The regular weekly goods train service between Meringur and Morkalla, in the extreme north-west of Victoria, was discontinued after the running of the train from Morkalla on June 2. The 9½ mile section of the line, which junctions at Redcliffs with the main Mildura Line, will remain open for the carriage of wheat only, and trains will be run only as required for this purpose. General traffic was very light and the only freight movement of any consequence was that of grain during four weeks or so in the harvest season. Because of this and the operating loss, continuance of the weekly goods service was not justified.

NEW ZEALAND

Paeroa Cut-off Line

The opening on July 20, of the new direct connection at Paeroa from the Frankton-Thames railway to the Paeroa-Taneatua line in the North Island has enabled the railcar services between Auckland and Te Puke (south of Tauranga) to be accelerated by amounts varying from 10 to 20 min. This brings their average time, including all 26 intermediate stops, over the new distance of 191.5 miles down to 5 hr. 47 min. Considerable improvement has also been made in the transit times of goods traffic in this increasingly busy area.

Through trains no longer enter the main station yard at Paeroa for reversal of direction. A new station with interchange sidings has been opened on the new cut-off at the point of connection with the Taneatua line and is called Paeroa South. The line from Paeroa South through Paeroa to Thames North is 21 miles in length and is worked for goods traffic only.

Diesel Shunting Locomotives

The first of the new 400-h.p. diesel-electric shunting locomotives being supplied by the British Thomson-Houston Co. Ltd., with mechanical portions by the Clayton Equipment Co. Ltd., is now in service at Auckland. Classified " Dsc," these 40 ton Bo-Bo type locomotives are each equipped with two Rolls-Royce six-cylinder diesel engines. The gear ratio and traction motors are designed for a top speed of 40 m.p.h., but they are not intended to haul more than about 100 tons on level track at this speed. In the shunting yards for which they were designed, they will be expected to move trains up to about 800 tons on level track at normal shunting speeds.

EAST AFRICA

Jinja-Bukonte Cut-off

East African Railways & Harbours has started work on a £1,390,000 rail cut-off between Jinja and Bukonte. The new 46.2 mile construction is an alignment from the existing route and will give a total saving of 5,500,000 wagon miles a year and almost three hours to passengers travelling from Tororo to Jinja. Sir Frederick Crawford, the Governor of Uganda, drove in the last marking-out peg at a ceremony on Walakuba Hill before earth-moving equipment started work.

Sir Frederick Crawford driving in the last marking-out peg for the Jinja-Bukonte cut-off, E.A.R.&H. Mr. J. R. Farquharson, General Manager, is on the right

BRAZIL

Record Trainload

The Central Railway has claimed a new record for mineral trains, set up in June, when a train of 99 wagons, hauled by eight 1,600-h.p. diesel-electric locomotives, conveyed 7,835 tons of iron ore from the Lafaiete mines to the National Steelworks at Volta Redonda. The journey of 250 miles was completed in 20½ hr.

Railways Under New Administration

The Executive Power, authorised by Congress, has rescinded the contract of lease of E.F. Sta. Catarina to the State Government and opened a credit of 40 million cruzeiros to maintain the railway until it is taken over definitely by the Federal Government. The Commission appointed to verify the financial position of the line must submit its report within 60 days. Until then, and pending its incorporation in the holding company, the railway will be subordinate to the

Federal Minister of Communications & Public Works. The incorporation in R.F.F. of E.F. Central do Parana, 201 miles long, with assets valued at 599,654,000 million crs., was officially proclaimed on June 15.

Agreement with Riograndense Railway

The agreement between the Federal and State authorities incorporating V.F. Rio Grande do Sul in the holding company maintains all rights and privileges, at present enjoyed by the employees, who are henceforth considered as State railway employees. The Federal Government undertakes to submit a Bill to Congress authorising payment of a 30 per cent bonus to employees retired on pension. R.F.F. assumes the obligations to speed up the work of linking the Cai-Passo Fundo section and the Principal Southern Trunk (Porto-Alegre-Sao Paulo) line by a broad gauge section and drawing up immediately a project to construct the Passo Fundo-Vacaria line. The re-alignment of the following sections is to be completed at an early date: Pedras Altas, Ramiz Galvao, Capao do Leao, Aroio do Sa and Canabarro.

Train Services to Brasilia

Separate routes have been selected for freight and passenger services between the Federal District and Brasilia, the new Federal capital. Goods will be despatched via Barra Mansa by the Central Brazil, Rede Mineira, and Goias railways. Passengers will be conveyed by the Central Brazil, Santos-Jundiai, Paulista, Mogiana and Goias railways, changing at Campinas and Araguari. The journey to Anapolis, where the railway ends at present, takes 51 hr.

In view of their somewhat precarious condition for heavy traffic, the Rede Mineira track is being reconditioned between Garcas and Goiandira 330 miles; 30 per cent of the ballast and sleepers will be renewed and 13,500 new rails laid. The track from Goiandira to Monte Carmelo also is to be re-conditioned. The entire work will require 33,000 tons of rails, which are now being delivered.

SWITZERLAND

Free Porterage

At Basle S.B.B. Station, passengers arriving by certain of the principal trains from Germany, such as the "Rheingold Express," may have their luggage, up to two articles per person, moved without charge to their connecting Swiss trains. The train conductor provides numbered identification labels for attachment to the luggage, which the porters, after making the transfer, tear off to present to the railway authorities for recovery of their porterage fees. The same arrangement obtains in the reverse direction and is also in force at Zweisimmen, where passengers have to change between the metre-gauge Montreux-Oberland Bernois trains and the standard-gauge trains of the Lötschberg Railway.

In view of the recent increase in Swiss porterage charges, which now amount to 1 Fr. Sw. for the first piece of luggage and 50 centimes for each additional article, this is a useful concession, amounting in value to 5s. in the case, say, of two persons with two pieces of luggage each.

Train Tail-lamps

A new type of tail lamp is in course of introduction on the Federal Railways. It is electrically-lighted, and instead of the normal fixed red indication it exhibits a flashing light, the aim being to avoid the possibility of confusing train tail lamps with red signal lights.

IRELAND

Noise from Diesel Testing

Dr. C. S. Andrews, Chairman, Coras Iompair Eireann, recently received a deputation representing residents in the Inchicore Works area. The deputation complained of noise from the diesel-electric locomotive testing yards.

Dr. Andrews said it had been decided the locomotives which are now being tested would be moved to another location but as this would take some time, silencers were being fitted in the meantime.

Publications Received

British Transport in 1958.—As in previous years, the British Transport Commission has published simultaneously with its report for 1958 a 32-page illustrated booklet giving an outline of its activities during the year. The progress achieved and problems encountered are described lucidly and briefly. Statistical information is given in clear diagrams. The steps being taken in several fields to improve British Railways services are described with the right amount of detail to interest the intelligent layman. Motive power and rolling stock, Banbury passenger station, Ripple Lane marshalling yard, and other railway installations, methods of handling special traffics, and the modernised restaurant at the Central Hotel, Glasgow, are among the subjects of well-reproduced photographic illustrations in colour and monochrome. The booklet is the subject of editorial comment elsewhere in this issue. It may be obtained, price 2s., from the British Transport Commission, 222, Marylebone Road, London, N.W.1.

Modern Railways. Their Engineering, Equipment, and Operation. By Cecil J. Allen. London: Faber & Faber Limited, 24, Russell Square, W.C.1. 10 in. x 7½ in. 307 pp. Illustrated. Price 45s. —In this concise but informative work, the subject of editorial comment on another page, clear descriptions of new techniques and developments, as in marshalling yard working, diesel and a.c. electric traction, and the "Trans Europe Express," C.T.C., and diesel services on the Continent, are given besides the more familiar explanations called for in a book of this kind, of the principles of the steam engine, timetable compilation, and so on. This is the more remarkable in view of the frequency with which applications of new discoveries alter, and sometimes revolutionise, railway activities. There are few railway subjects which are not touched on, or, more often, carefully considered, with some illuminating comment by the author. The due proportion of space allotted to British and overseas railway features and practices is well maintained. In the case of signalling, British practices, including some very recent installations, are, rightly, described fully, whilst considerations of brevity preclude descriptions of those of other countries. The many illustrations are well chosen, and the photographs generally are well produced; readers of many descriptive books on railways will be glad to find that a high proportion of the illustrations are reproduced for the first time.

Universal Diesel-Electric Locomotive.—An illustrated leaflet produced by the International General Electric Company of New York, describes the 700 h.p. U6B Universal diesel-electric locomotive with Caterpillar D-397 1,300 r.p.m., turbo-charged and inter-cooled four-stroke V-12 engine, and G-E traction equipment. Among the advantages claimed for the U6B model are dependability and high efficiency with good accessibility of working parts so reducing maintenance costs. Full performance data is listed and it is shown that these locomotives can be ordered for any one gauge from 36 in. to 66 in. The continuous tractive effort is given as 34,000 lb., or 26,700 lb. when 36-in. gauge. A feature of the leaflet is a diagram used to illustrate the concentration of high torque mechanisms only in areas where they are required, that is on the axles. For comparison with this are shown layouts of the shaft systems, gearboxes, and coupling rods of other transmission systems which, it is stated, restrict freedom of locomotive design, and are subject to high wear throughout. There are brief notes describing the availability of motive-power surveys without cost to potential G-M users, staff training, service facilities, and simplified spare-parts ordering.

Kent's New Electric Trains.—A small illustrated folder issued by British Railways, Southern Region, gives a short, clear description, for the general public, of the multiple-unit trains which are now working the recently electrified London to the Kent Coast services via Chatham. The illustrations include plans of coach layouts. The basis of the new electric service timetable is outlined, with brief indication of some of the major works involved in electrification to Ramsgate and Dover.

British Transport Commission Results for 1958

Working deficit of £48 million on British Railways, and surpluses on some other carrying activities : progress with railway modernisation

THE annual report of the British Transport Commission for 1958, shows a working deficit of £48,086,529 on British Railways, with surpluses and deficits on other activities as shown in the accompanying tables. The financial aspects were discussed in an editorial article last week.

Great strides are reported in re-equipment and modernisation in 1958. Whole areas and lines, for example, are being made over to diesel traction this year. This was accompanied by the successful re-shaping of the organisation to keep pace with it. More passengers were carried on British Railways than in any year since nationalisation. The provincial bus companies and the shipping services also had a good year. The general level of passenger fares on British Railways remained constant throughout 1958 and are, relatively, below pre-war level; but in September the Commission was obliged to approach the Transport Tribunal to allow greater charging freedom on railways and on London Transport services. Freight charges during the year did not on the whole increase, though many were raised or lowered in negotiation with individual traders. Higher running costs caused the bus companies to raise fares to varying degrees. New services offered by road and rail are stated to have attracted favourable comment.

	Net receipts Year, 1958	Better (+) or worse (−) than 1957
Principal carrying activities :	£ million	£ million
British Railways (including C. & D. services) ... (deficit)	48.1	− 20.9
British Road Services	2.0	− 0.8
Provincial and Scottish buses ...	6.0	+ 1.0
London Transport:		
Road ... ... (deficit)	0.8	− 4.6
Rail	2.6	+ 0.7
Ships	2.3	+ 0.5
Inland Waterways: carrying (deficit)	0.2	—
Total: Carrying activities (deficit)	36.2	− 24.2
Other principal activities:		
Docks, Harbours & Wharves ...	2.2	− 0.3
Inland waterways: tolls, etc. (deficit)	0.6	− 0.3
Hotels & catering services:		
Hotels	0.1	− 0.1
Refreshment rooms	0.4	− 0.1
Restaurant cars (deficit)	0.7	− 0.2
Letting of land and buildings not in operational use	4.0	+ 0.8
Total: Other principal activities ...	5.4	− 0.1
Miscellaneous activities	2.7	− 0.1
Working deficit	...£28.1m.	£ − 24.4 m.

From the middle of 1958 reductions in operations were overshadowed by industrial activity. The hardest hit was rail freight, which normally earns two-thirds of all its revenue from coal and steel carrying. The deficit of £48 million on British Railways, £21 million more than in 1957, reflects this serious loss of traffic. The higher earnings hoped for, which took into account increased charges made in August, 1957, were not realised. Another adverse factor was the loss of revenue during and after the London bus strike. Nevertheless British Railways cut their expenses by £9,000,000, despite wage and price increases of £13 million. London Transport also cut costs heavily by reducing bus mileage.

Passenger Services

The expansion of services worked by the multiple-unit diesel trains undoubtedly contributed to British Railways passenger receipts. Forty-four new multiple-unit diesel services, introduced in widely different areas, soon began earning more revenue than the steam services they replaced. For the holiday trade, schemes to gain new railway business included various seven-day run-

BRITISH TRANSPORT COMMISSION: CONSOLIDATED BALANCE SHEET AT DECEMBER 31, 1958

December 31, 1957 £		£	£	December 31, 1957 £		£	£
	Current Liabilities—				**Current Assets—**		
11,300,000	Bank advances	4,800,000		8,788,303	Bank balances and cash	10,011,690	
89,774,598	Creditors and accrued expenses (including £5,360,000 due to a subsidiary company)	92,279,730		792,862 70,835,828	Marketable securities (market value £814,963) ... ... Outstanding traffic accounts ...	738,397 65,856,174	
14,819,401	Interest (less income tax) accrued on capital liabilities	18,628,406		17,456,127 121,185,003	Other debtors and payments in advance Stores and materials	20,360,716 125,688,368	
115,893,999			115,708,136	219,058,123			222,655,345
	Deposits—				**Investments in respect of British Transport Stock Redemption Fund Accounts** (market value £34,730,363)		
43,990,798	Staff savings banks	43,722,981					
106,706,237	Staff superannuation funds ...	113,645,569		32,434,222			36,489,679
150,697,035			157,368,550				
	Provisions—				**Fixed Assets and Goodwill** on bases indicated in supporting Statements and notes on accounts		
112,674,231	Retirement benefits	113,954,894					
13,227,132	Taxation	15,302,090		10,063,098	Interests in non-controlled undertakings	10,040,740	
5,290,353	Internal insurance	5,520,353			Interests in subsidiary companies not engaged in the principal activities of the Commission	4,556,728	
131,191,716			134,777,337	3,979,758			
	Capital Liabilities—				Rolling stock, vehicles, ships and plant and equipment ... ... £ 1,097,438,874		
1,443,758,684	British Transport Stock	1,443,555,325		1,031,779,757	*Deduct* depreciation account 434,989,562		
	Advances by the Minister of Transport & Civil Aviation			435,226,761			
101,200,000	Other than under the Transport (Railway Finances) Act, 1957 ...	212,689,000		596,552,996		662,449,312	
94,426,642	Under the Transport (Railway Finances) Act, 1957	191,158,267					
587,321	Obligations to local authorities ...	526,441					
1,639,972,647			1,847,920,033	1,203,120,377	Land, buildings, permanent way, docks, canals and other works 1,236,691,719		
32,677,922	**Capital Redemption Accounts** ...		36,948,371	238,636,683	*Deduct* maintenance equalisation account 228,309,516		
				964,483,694		1,008,382,203	
	Net Revenue Account—						
	Surplus for years 1956 to 1958 in respect of Activities other than			42,134,337	Goodwill	42,138,910	
7,680,846	British Railways		8,791,641	1,617,213,883			1,727,567,893
				7,190,925	**Discounts less Premiums on Issue of British Transport Stock,** less amounts written off		6,626,925
				202,217,012	**Special Account** established pursuant to Section 3 of the Transport (Railway Finances) Act, 1957		308,174,226
2,078,114,165			2,301,514,068	2,078,114,165			2,301,514,068

Note. Estimated further expenditure on Capital Account authorised at December 31, 1958: £318,000,000.

BRIAN H. ROBERTSON *Chairman*
J. BENSTEAD *Deputy Chairman*
REGINALD WILSON *Member*

CONSOLIDATED WORKING RESULTS OF PRINCIPAL ACTIVITIES OTHER THAN CARRYING

	Docks, harbours, and wharves	Inland waterways: other than carrying operations	Hotels and Catering				Letting of land and buildings not in operational use	Grand Total
			Hotels	Refreshment rooms	Restaurant cars	Total		
	£	£	£	£	£	£	£	£
Gross receipts...	21,015.172	2,675,027	7,504,127	10,296,996	4,148,781	21,949,904	6,898,787	52,538,890
Working expenses	18,847,724	3,316,593	7,377,032	9,901,666	4,807,750	22,086,448	2,886 499	47,137,264
Net receipts	2,167,448	641,566 (deficit)	127,095	395,330	658,969 (deficit)	136,544 (deficit)	4,012,288	5,401,626
YEAR 1957								
Gross receipts...	21,753,293	2,668,139	7,259,610	10,401,120	4,246,157	21,906,887	6,262,386	52,590,705
Working expenses	19,320,616	3,024,995	7,075,070	9,930,350	4,754,952	21,760,372	3,026,889	47,132,872
Net receipts	2,432,677	356,856 (deficit)	184,540	470,770	508,795 (deficit)	146,515	3,235,497	5,457,833

about tickets and use of multiple-unit diesels for excursions and party outings. Car-sleeper trains, first introduced in 1955, proved highly successful.

London Transport was seriously affected by the bus strike of May-June, 1958. Pruning services to meet the changed commercial demand resulted in economies. L.T.E., which had already cut mileage of its road services by 3½ per cent in April, then made further cuts, reducing mileage run by Central Road Services to 24 per cent below that of 1950. Smaller cuts were made on the Underground, partly to meet the cost of a wage settlement.

Goods Services

Carryings of coal and steel by rail dropped sharply. Although 7 per cent less coal was available during 1958 for transport, the railways substantially kept their share of the market, about 75 per cent of the total. Mineral traffic, mainly the carrying of raw materials for the iron and steel industry and its various semi-finished products, also declined, by 19 per cent.

The Commission nevertheless pressed on with plans to improve the variety, speed and all-round efficiency of its freight services. With the principal objective of capturing a greater proportion of merchandise traffic, and particularly that passing in full-wagon loads, more brake-fitted express goods trains, many of them running to published timetables, became available during the year; next-day transits were extended between various places in Scotland; the "Export Express" service was expanded; and new charging arrangements covering port dues were brought in for several ports.

During 1958 there were fewer goods on offer for transport, and more transport units competing for them. Both the numbers and the carrying capacity of C-licensed vehicles suitable for carrying goods over medium and long distances steadily increased. Operators of road haulage vehicles have been cutting rates to attract general merchandise, but with the new freight charging scheme in operation they were beginning to complain of fierce competition from the railways.

British Road Services conveyed 99 per cent of their 1957 total tonnage and pursued a vigorous commercial policy.

For every one main-line diesel locomotive running in 1957, more than four were operating in 1958, and the number of multiple-unit diesel vehicles has almost doubled. Many more main-line diesel locomotives are coming forward and 388 are being delivered in 1959, compared with 83 in 1958. On two lines, the Great Northern main and the Great Eastern between Liverpool Street and Norwich, diesel locomotives are now in regular service.

Electrification

Progress was made in electrification at 25kV., 50 cycles a.c. of the Crewe-Manchester lines of the London Midland Region, and of the Liverpool Street to Enfield, Bishop Stortford, Ipswich and Clacton lines and the L.T.S. line of the Eastern Region, also, at 750V. d.c., of the Kent Coast line of the Southern Region, as recorded in our issues from time to time. In the Scottish Region, overhead wiring for the first stage of the Glasgow suburban lines electrification began in September and major engineering works are in hand.

To achieve smoother riding of passenger stock it has been decided to use the Commonwealth bogie, despite delays in the introduction of new standard stock. By the end of 1958 7,500 new vehicles had replaced 7,400 old ones since implementation of the plan began, and another 2,000 older vehicles are to be withdrawn. The new stock included 2,400 diesel multiple-unit vehicles, 1,200 electric multiple-unit vehicles, and 3,900 locomotive-hauled vehicles. Many old vehicles are still running because it would not pay to replace them just before conversion to multiple-unit diesel or electric traction.

Passenger Stations

Included in the new constructions and improvements completed during 1958 were the new Gatwick Airport and Banbury stations, and the reconstruction of Barrow-in-Furness station. Schemes have been worked out for rebuilding Kings Cross and Leeds City stations Work progressed on Plymouth North Road, Chichester and Glasgow Central stations, and was resumed, after delays caused by capital restrictions, on installing Travolators at Bank station and replacing Cannon Street station roof.

Wagons and Containers

During 1958, 120,000 wagons were withdrawn, partly because traffic demands were lower and partly through special economies in repair and maintenance. By the end of 1958, more than one wagon in every four was fitted with continuous brakes, and the mileage of express brake-fitted trains had increased to over 35 per cent of the total goods trains operated. Old-type tipplers, still used in certain company works, slowed down the programme for fitting continuous brakes to mineral wagons. Until these can be modernised, braked mineral stock will be kept on circuit working as far as possible. Research and experiment on automatic couplings continue. British Railways are pressing ahead with container techniques and with the maximum use of pallet loading. Eighteen types of containers are now available. The report mentions the L.M.R. London-Glasgow overnight "Condor" service. Goods vehicles built or ordered in 1958 included 7,000 27-ton no-door wagons for discharging ironstone through tipplers; wagons converted to carry cars, including two-tier wagons for shipment delivery There was large-scale production of 24-ton hopper wagons for powdered bulk materials, and of similar 20-ton vehicles with air-pressure discharge.

Marshalling Yards

Up to the end of 1958 some 40 marshalling yards formerly owned by the private railway companies, and therefore sited to suit their traffic, were closed, and yards at Thornton (Fife) and Temple Mills were opened and construction schemes for 27 new yards had been put in hand. 270 goods depots and yards had been closed.

In improving track British Railways are concentrating on trunk routes scheduled for diesel and electric traction. Priority is being given to lines serving coalfields, iron and steel centres and ports, from which much railway revenue is derived. At Banbury for instance speeds through the station have been raised from 60 to 75 m.p.h. At Basingstoke, a high-speed crossover was installed which can be taken at 65 m.p.h. Track inspection equipment, including a self-propelled coach in which electronic instruments test curvature, cant and gauge of track while running at 30 m.p.h., is now in use, and the laying rate of long-welded rails, which give smoother riding and minimise wear, has been accelerated.

Semaphore is being replaced by colour-light signalling, coupled with track circuiting, and the old signalboxes by

CONSOLIDATED WORKING RESULTS OF PRINCIPAL CARRYING ACTIVITIES

	Passenger and freight services of British Railways		C. & D. and other road freight services of British Railways		Road haulage by British Road Services		Road passenger services of provincial and Scottish groups		London Transport services				Ships: passenger and freight services		Inland Waterways: carrying operations		Grand total	
									Road services		Railways							
	£	Per cent	£	Per cent	£	Per cent	£	Per cent	£	Per cent	£	Per cent	£	Per cent	£	Per cent	£	Per cent
Gross Receipts:																		
Passenger	137,956,000		—		—		60,049,170		48,611,942		24,444,091		6,918,076		—		277,979,279	
Freight (including parcels and mails)	323,460,721		—		47,698,610		—		—		—		8,604,358		888,768		380,652,457	
Miscellaneous (including letting of sites and premises on properties in operational use (net) and commercial advertising (net)	10,188,556		—		1,775,007		681,242		593,694		1,285,738		1,116,169		39,825		15,680,231	
Total	471,605,277		—		49,473,617		60,730,412		49,205,636		25,729,829		16,638,603		928,593		674,311,967	
Percentage of grand total—Year 1958	70		—		7		9		7		4		2		—		100	
Year 1957	70		—		7		8		9		4		3		—		100	
Working Expenses:																		
(a) Train, vehicle and ship operating expenses	186,700,655	36	11,808,786	60	22,302,402	47	35,822,072	65	32,624,077	65	8,393,726	36	5,353,788	37	332,406	30	303,337,912	42
(b) Maintenance of rolling stock and ships	107,242,233	21	4,586,805	23	8,331,608	18	10,358,983	19	9,155,201	18	3,839,811	17	3,235,228	23	254,752	23	147,011,681	20
(c) Other traffic expenses	82,537,934	16	1,459,013	8	9,643,213	20	3,795,591	7	3,683,029	8	4,873,639	21	4,715,383	33	294,679	26	111,002,481	15
(d) Signalling expenses	35,234,942	7	—	—	—	—	—	—	—	—	1,571,371	7	—	—	—	—	36,806,313	5
(e) Maintenance of way and structures	80,274,817	16	112,032	—	508,566	—	1,345,363	3	663,713	1	2,805,815	12	7,454	—	—	—	85,717,760	12
(f) Vehicle licence duties and inland waterway tolls	—	—	575,352	3	999,220	2	1,118,140	2	811,037	2	—	—	—	—	183,396	16	3,687,145	1
(g) General	19,401,853	4	1,016,596	5	5,716,271	12	2,308,599	4	3,056,370	6	1,648,100	7	982,016	7	58,992	5	34,188,797	5
	511,399,494	100	19,558,584	100	47,501,280	100	54,748,748	100	49,993,427	100	23,132,462	100	14,293,869	100	1,124,225	100	721,752,089	100
(h) Charges to British Railways for road conveyance of freight	19,332,397		*19,332,397*														—	
(i) Other charges to British Railways and other activities	—		*226,187*														*226,187*	
	530,731,891																721,525,902	
Deduct: (j) Internal charges raised for transport services	11,040,085																11,040,085	
Total	519,691,806		—		47,501,280		54,748,748		49,993,427		23,132,462		14,293,869		1,124,225		710,485,817	
Net Receipts	48,086,529 (deficit)		—		1,972,337		5,981,664		787,791 (deficit)		2,597,367		2,344,734		195,632 (deficit)		36,173,850 (deficit)	
Operating ratio: percentage of working expenses to gross receipts	110		—		96		90		102		90		86		121		105	
Year 1957																		
Gross receipts	501,429,513		—		50,327,845		58,519,885		60,012,517		24,415,844		16,619,476		985,566		712,310,646	
Working expenses	528,569,699		—		47,537,410		53,495,737		56,228,433		22,491,658		14,729,771		1,209,504		724,262,212	
Net receipts	27,140,186 (deficit)		—		2,790,435		5,024,148		3,784,084		1,924,186		1,889,705		223,938 (deficit)		11,951,566 (deficit)	
Operating ratio: percentage of working expenses to gross receipts	105		—		94		91		94		92		89		123		102	

NOTE.—The classification of working expenses under the main heads shown above, while broadly uniform, differs to some extent as between one aetivity and another

fewer powered boxes, all with track diagrams and linked to power-operated points. Automatic Warning Control was put in operation on several routes, and miles equipped with the new standard system totalled 298 at the end of 1958. Several automatic exchanges, teleprinter systems and trunk networks have been installed.

British Railways used two computers to some purpose in 1958. The English Electric "Deuce" searched through an existing timetable and discovered paths through the scheduled services for additional special trains. The other, the Ferranti "Pegasus", has worked out a timing of trains over a given line to ensure the maximum use of track with the rolling stock and crews available. If various experiments succeed, computers will help to speed up bi-annual timetables reviews, help to schedule extra holiday trains, and cut much detailed clerical work. An analogue computer installed during the year gives advance details of train performances with each of the new types of motive power.

Modernisation of the fleet of ships continued and six new vessels came into service. Some of these were specially designed to carry the growing volume of container traffic, both between Britain and Northern Ireland and Britain and the Continent. By the end of 1958, fourteen vessels were under construction or on order, including a new motorcar carrier.

On the L.T.E. Underground, work began on extending the Metropolitan Line electrification from Rickmansworth to Amersham and Chesham, and the four-tracking of the line between Harrow and Watford South was pushed forward. The last of three new prototype trains ordered for the Piccadilly Line was delivered and 532 new cars were ordered. New automatic signalling machines for Underground trains began service at Camden Town and at Euston.

Organisation

Varying forms of traffic management were adopted by several Regions, though all involved closer co-ordination of commercial, operating, and motive power activities, so as to facilitate the winning and better handling of traffic. The concentration of responsibility for civil, mechanical and electrical, and signal engineering where it had been introduced, proved advantageous.

The decrease in total B.T.C. staff of some 4 per cent over the year was made possible by introduction of new methods and techniques of which work study is an outstanding example. Good progress in this field was achieved on British Railways in 1958 and, besides savings in manpower, more effective use was made of capital assets and equipment. Altogether, 300 schemes have been implemented and another 250 are under investigation. About 30 per cent of the total railway track is, for instance, now maintained under work study schemes; in the Southern Region the figure is over 75 per cent. Most of the schemes, though by no means all, incorporate some bonus incentives.

Re-appraisal of British Railways Modernisation Plan

Extensive closure of lines and stations: quicker replacement of steam by diesel and electric traction: modified electrification programme

THE British Transport Commission report on its re-appraisal of the modernisation plan for British Railways is published as a Command Paper (Cmd. 813, H.M.S.O., price 3s.) in accordance with the promise made by the Minister of Transport & Civil Aviation, Mr. Harold Watkinson, in the House of Commons last December. He had said then, when a Bill to extend the limits on the sums the Government can lend the Commission (the Transport (Borrowing Powers) Bill) was being debated, that, in his request, the Commission had started a "full, detailed and urgent review of the whole Modernisation Plan." The report was debated in the House of Commons on July 29.

The report gives the Commission's assessment of the results of modernisation so far, and its answers to questions about the future size of the railway system and the steps necessary to enable British Railways to pay their way at the earliest possible date. Sir Brian Robertson, Chairman of the Commission, states in the report that the essential requirement of the next five years is that a more compact railway system and a more economic scale of operations shall be achieved more quickly. Accordingly, the modernisation plan, already ahead of schedule, should be speeded up with a view to improving the railways' financial position as quickly as possible.

Some modifications in priorities and emphasis in the original plan are now desirable, principally in the direction of speeding up parts of the plan to bring results more quickly. The fundamental objectives remain unchanged. Speeding up modernisation would mean accelerating investment in the railways, and accelerating the streamlining of the system to secure more work from a smaller but more efficient equipment.

During the period 1959-63, it is emphasised, it will be necessary to pursue drastic rationalisation, which has already been carried out to a considerable extent in the past few years, vigorously. Subject, necessarily, to the many assumptions inherent in such a forecast, the gross receipts of the Commission are expected to exceed working expenses by 1963, leaving a working surplus at about the end of that year which might be put at between £50 million and £100 million. Against this, interest charges will amount to about £85 million.

Beyond that time, working surpluses should rise, but may be counterbalanced by rising interest charges, and, to ensure financial stability in the longer term, it is recommended that the financial structure of the Commission's organisation should receive consideration.

In Part I of the re-appraisal the Commission reports on the progress made so far with the modernisation plan. The cost of the plan was estimated at £1,500 million, with additional items costing a further £160 million in the first four years to the end of 1958. Investment in British Railways during the period amounted to £421 million.

Plans for 1959-63

Part II of the report describes what the Commission plans to do, especially in the next five years. There is to be a reduction in route mileage of about 10 per cent between 1959 and 1963, representing a much greater scale of closure than in the last four years, when route mileage was reduced by 300 miles to 18,850. The number of stations closed is likely much to exceed that in the last four years, when nearly 400 were closed, and also to be relatively greater than the planned reduction in route mileage, because of the large number of intermediate stations to be closed on lines to remain open for through traffic.

With few exceptions, it is stated, the main lines are busy and likely to remain so. There is some duplication between them, and if the system could be laid out anew, some of them might be omitted. At present, the Commission does not foresee any closure of main lines between now and 1963.

Rationalisation may require capital expenditure on one part of the system to provide the increased capacity which will enable the load to be taken off a less remunerative section. Electrification of the West coast route from Euston as between Crewe and Carlisle would enable traffic to be diverted to it from a large section of the former Midland Railway route between Hellifield and Carlisle, and would enable much of the latter to be closed. A scheme has been approved to reduce the line from York to Beverley near Hull to single track and work it under C.T.C.

The former Great Central line between Marylebone and the Midlands, Yorkshire and Manchester, opened 60 years ago as a purely competitive route, since nationalisation has become less important because its services are mostly duplicated by other routes, and there has already been a planned reduction in the goods traffic movement to and from London. It is proposed to substitute, so far as the London trains are concerned, a service between Marylebone and Nottingham catering for the intermediate traffic of the few stations to remain open between Aylesbury and Nottingham.

Civil Engineering Works

Electrification at 25kV, 50 cycles, in the London Midland and Eastern Regions will involve major works for overhead equipment. Phase 2 of the Kent Coast Scheme will necessitate the provision of additional tracks in the Folkestone area to enable expresses to overtake other trains. The track capacity of the East Coast main line from Kings Cross will be increased by the removal of bottlenecks at various points. In the Scottish Region, a connection between the former L.N.E. and L.M.S. systems in the Edinburgh area will enable a better service to be provided for mineral traffic.

The capacity of the main line from Paddington will be increased by the construction of an extra running line through Reading General station and by new loops in the Didcot-Swindon area. Further west, the diversionary route over the Severn Bridge between Lydney and Sharpness will be developed to relieve the congested Severn Tunnel. Improved operating facilities to be provided in the Port Talbot area include an additional running line at Margam, quadrupling through Port Talbot station, a new connection to the Treherbert line and colour-light signalling over the eight-mile stretch between Pyle and Briton Ferry; four marshalling yards and nine signal-boxes will be closed.

A new route is being developed for iron ore traffic from the Midlands to South Wales by providing connections between the former G.W. and L.M.S. lines at Fenny Compton (north of Banbury) and at Stratford-on-Avon.

Major schemes begun in 1955-58, and now to be completed so as to benefit traffic operation, include the elimination of bottlenecks by widenings and flyovers, and new junctions to enable traffic to use quicker alternative routes. Over 8,000 miles of track will be relaid and extensive re-ballasting carried out. Production of long-welded rails at six specially equipped depots should have reached an annual output of 320 track miles. More than 900 bridges will have been reconstructed or strengthened.

Track

During 1959-63, work on the track will be accelerated to meet the demands of new forms of motive power and more intensive services. The aim is to produce a track which will be stronger, last longer and require less day-to-day maintenance; to this end the depth of ballast will be increased and drainage improved, and more use made of long-welded rails with improved types of sleepers, and of points and crossings made of manganese and other forms of harder steel with improved wearing qualities. The output of long-welded rails will have been increased to some 320 track miles a year by 1963, when three additional welding depots will be in service to supplement the three already in production. Concrete sleepers will be laid at the rate of over 100 track miles a year. Increasing use will be made of mechanical plant for track maintenance, and the total number of permanent way staff will be further reduced; it is intended that incentive bonus schemes shall be universally adopted for track maintenance.

Signalling

By the end of 1963, colour-light signals will have been installed on nearly 3,000 track-miles, besides the 1,700 track

miles so fitted at the end of 1958. Many major re-signalling schemes will have been completed. Centralised traffic control is expected to be in operation over some 170 miles of single line. The double line between York and Beverley will be converted to single track, for operation by C.T.C. Subject to the approval of the Ministry of Transport & Civil Aviation, most of the level crossings on this line will be provided with lifting half-barriers, automatically operated by the trains, instead of gates; and schemes are being developed to install half-barriers at level crossings in other Regions. Other sections proposed to be converted to C.T.C. operation by 1963 include the Central Wales (Llandilo—Craven Arms), Carmarthen—Johnston and Honeybourne—Cheltenhan lines of the Western Region.

The first five-year plan for the installation of the standard system of automatic warning control on principal main lines is due for completion by the end of 1962, when a further programme will be started. Besides the track and locomotives now fitted with the Western Region system, it is intended that by the end of 1963, over 1,800 route-miles, with more than 10,000 locomotives and multiple-unit vehicles, will be equipped with the standard system, compared with about 300 route-miles and a little over 100 locomotives and a few multiple-unit vehicles at the end of 1958.

Replacement of Steam Traction

The report states that " the next five years will see a marked acceleration in the replacement of the steam locomotive by diesel and electric traction." Steam traction should have disappeared completely from East Anglia and South-Eastern England, from the Western Region lines west of Newton Abbot, and from most of the Scottish Highlands. Very few steam locomotives will be left in the Bristol area, on the East Coast main line, and on the St. Pancras main line south of Leicester.

The total number of locomotives, now 17,500, is expected to be reduced to 11,500 by the end of 1963. This reflects the much greater availability of diesel and electric power, enabling fewer units to do more work. Passenger vehicles are to be reduced from 42,000 to 35,000, but the greater number of multiple-unit vehicles and more extensive use of modern locomotive-hauled vehicles will enable increased traffic to be carried with a smaller fleet. The wagon fleet, slightly over 1,000,000 at the end of 1958, will be further reduced and a figure of 750,000 is taken as a reasonable planning figure. This will include new wagons of higher capacity, with quicker turn-round, achieved partly by improved terminal working, thus maintaining the capacity of the fleet.

Workshops

The Commission's policy for the future will be to continue to use its own workshops for the manufacture of equipment and components for which they are laid out, and for the repair of all equipment. This is subject to the proviso that its costs are competitive. The Commission will continue to rely on outside industry for the supply of new diesel and electric power equipment, and it may purchase complete locomotives and rolling stock from industry as its programmes require and when circumstances justify such a course.

Of the 22 British Railways works engaged in the repair of locomotives at the beginning of 1959, only 12 are likely to remain in use at the end of 1963; some of the smaller works are likely to be closed by the end of 1959. Carriage and wagon repairs will cease at several main works during 1959-63, and about half of the railway out-station wagon shops will be closed. The need for assistance by private wagon repairing firms will diminish progressively, and in the end will be very small indeed. The construction of new locomotives, carriages and wagons will be confined to a smaller number of main centres.

Electrification

The electrification programme given in the White Paper of 1956 has been reviewed; some changes in priority have taken place since then, and the completion dates of some of the schemes have been modified. It is hoped to accelerate, by one or two years, the date for completing the whole of the electrification of the London Midland Region main line from Euston to Birmingham, Crewe, Liverpool, and Manchester. Concentration of resources on this will mean that electrification of the East Coast main line from Kings Cross will not be undertaken during 1959-63, though a start will be made on the Great Northern suburban services. Part of Phase 2 of the Southern Region Kent Coast Scheme is to be finished in 1961, a year earlier than envisaged.

The revised electrification programme requires that electrification should be completed on some 600 route-miles during 1959-63, and that work should be in progress on about a further 600-700 route-miles at the end of that period. The revised completion dates are given below:—

London Midland Region: Crewe-Manchester, September, 1960; Crewe-Liverpool, September, 1961; Euston-Birmingham-Crewe, 1964 (subject to review).

Eastern Region: Liverpool Street-Southend/Chelmsford (d.c./a.c. conversion), September, 1960; Liverpool Street-Enfield / Chingford / Hertford East / Bishops Stortford, September, 1960; London, Tilbury & Southend Line, June, 1961; Chelmsford-Colchester, March, 1962; Moorgate (Northern City Line)-Hertford North, 1962/63; Kings Cross-Hitchin-Letchworth, 1963/64; Colchester-Ipswich and Harwich after 1964; Lea Valley Line and Bishops Stortford-Cambridge after 1964.

Eastern and North Eastern Regions: Kings Cross-Leeds/York after 1964.

Scottish Region: Glasgow Suburban: Stage I. Phase 1 (Helensburgh/Balloch/Milngavie-QueenStreet-Airdrie) 1960; Phase 2 (Glasgow Central-Cathcart Circle/Neilston/Kirkhill) 1961; Stage II: Further routes south of the Clyde 1963/64.

Southern Region (750-*V. d.c. system*). Kent Coast: Phase 1 (Gillingham-Ramsgate/Dover) completed June, 1959; Phase 2 (Sevenoaks-Dover & Ramsgate) 1961/2.

All the schemes mentioned above (except those in the Southern Region) will be carried out on the 25 kV a.c. system, It is expected that overhead equipment can be simplified, and that improved insulating techniques will reduce the amount of work necessary to obtain overhead clearances.

Diesel Traction

Some 2,300 diesel main-line locomotives should be in service by 1963. The aim is the displacement of steam locomotives on an area basis, but until enough diesels are available to make this fully practicable, those available will be used on selected routes to secure the maximum economy or improvement in services as swiftly as possible. For example, 22 " Deltic " locomotives will replace 55 steam engines working express passenger trains between Kings Cross, Newcastle, and Edinburgh, enabling these services to be substantially accelerated despite the speed restrictions caused by the heavy programme of engineering work. Between Newcastle and Edinburgh, 20 diesel locomotives are expected to replace 48 steam locomotives on the haulage of those expresses not already scheduled to be worked by the " Deltics." All express trains between Edinburgh and Aberdeen should be worked by diesels by the end of this year.

All 245 steam engines working on the Western Region lines in the West of England are planned to have been replaced by 115 diesels by the end of 1961; a further 160 diesel locomotives will then replace 300 steam engines in the Bristol area. By 1962 it is expected that about 250 diesel locomotives will be in service in the London Midland Region, covering the lines from St. Pancras to Leeds and Manchester, and from Leeds to Bristol. The North Eastern Region expects to have about 350 diesel locomotives in use by 1963, replacing some 700 steam engines.

By 1963, a large part of the Scottish Region services will be diesel worked, starting in 1960 with the areas of the former Highland and Great North of Scotland Railways, for which 75 locomotives and some 40 multiple-units will be required. In the following year some 140 locomotives are to be introduced on the lines from Glasgow to Aberdeen, Mallaig, and Oban, and on goods workings in the Glasgow area. In 1962, nearly 200 locomotives and some 75 multiple-units should be introduced between Carlisle and Edinburgh, and in Fife and South-West Scotland. Diesel traction will also be used in advance of electrification.

By the end of 1963, over 4,000 diesel multiple-unit vehicles should be in service compared with about 2,400 at the end of 1958, and the fleet should be almost complete. The new vehicles will be used on services in most parts of the system including the West of England, Central Wales, Scotland, East Anglia, Lincolnshire, Lancashire and Yorkshire, and on London suburban services from Kings Cross, St. Pancras, Marylebone and

Paddington. Further additions to the fleet of diesel shunting locomotives should ensure that by 1963 the elimination of steam engines from regular shunting will be virtually complete.

Passenger and Parcels Traffic

By the end of 1963, diesel and electric traction are expected to be transforming main-line passenger services in the same way as local and cross-country services are now being transformed by the use o diesel multiple-units. There will be regular-interval services of main-line trains on faster schedules. supplemented by improved and more frequent local and cross-country services. The lines between Paddington and the West of England, between Liverpool Street and East Anglia, and between London and South-Eastern England, will be among those having such services fully in operation.

In the diesel multiple-unit luxury expresses to be introduced in 1960, full air-conditioning will be provided, and meals will be served at each seat. These trains will first run between Manchester and St. Pancras, Paddington and Bristol, and Paddington, Birmingham and Wolverhampton. New types of catering vehicles will be put into general service to supplement the existing restaurant cars: examples are the miniature buffet car, serving light refreshments, and a new type of car offering a range of grilled dishes.

Station Modernisation

Many passenger stations will be completely or partially modernised: some in conjunction with electrification, such as Euston, Kings Cross, Coventry, Stafford, Birmingham New Street, Wolverhampton, Manchester London Road, Colchester, and Barking; others because they do not meet today's requirements, including Peterborough North, Grantham, Sunderland, Wakefield, Plymouth, Reading, Oxford, Port Talbot and Kidderminster. Leeds City and Central stations are planned to be combined on one site to give much better interchange facilities to passengers and offer substantial operating economies. The aim is to segregate parcels traffic as far as possible and free the platforms for passengers. Parcels concentration depots will be set up at the centres where the bulk of this traffic originates. Four such depots are now being built, at Liverpool, Oldham, Glasgow, and Kensington, and many others are planned.

Much more, the report states, will be done to improve carriage cleaning, particularly in connection with diesel services. New depots, or improvements to existing equipment, will be provided at many places.

By mid-1960, nearly all merchandise wagons will be fitted with vacuum brakes The original programme for the fitting of continuous brakes to mineral wagons was slowed down in 1958. Further progress in the fitting of mineral wagons is stated to depend on the provision of "an improved form of coupling satisfactory to both industry and the railways," and experiments are now being carried out with various types. Among these are automatic couplings which offer potential savings in time and staff in marshalling yards, although they are far more expensive than other types of coupling. The large-scale introduction of automatic couplers, it is pointed out, depends on the design of a wholly satisfactory type, and the rate at which it can be produced in quantity. Problems arise such as sharp curves on lines in industrial premises, and although the experiments are being pressed forward they take time.

New types of higher-capacity mineral wagons are to be introduced as soon as suitable terminal handling equipment is available. Much traffic is handled at terminals not owned by the Commission. The co-operation of traders is being sought in the adaptation of equipment at such privately-owned terminals. The use of modern, high-capacity vehicles, coupled with a radical improvement in round-trip time, will lead to a considerable reduction in the total number of wagons.

The numbers of special-type containers will be increased, and intensive study directed towards finding a cheaper and quicker method of road-rail transfer, and towards improving the pay load/tare weight ratio of containers. It is proposed to introduce more "freight liner" trains of containers on specially fitted wagons hauled by diesel locomotives.

During the next five years further schemes will be developed for concentrating goods traffic at a smaller number of depots and railheads, each covering a wide area with road or rail feeder services. Conveyor belts will continue to be installed at the larger stations where a steady flow of traffic is assured. At other places, battery-electric trucks will be used. An experiment is in progress at Newton Abbot goods shed with a driverless electric truck guided en route by a cable laid in the floor, described in our April 24 issue.

Similarly, the handling of wagon load traffic will be concentrated at mechanised depots. By 1963, the Western Region expects to have constructed 15 concentration depots which will handle the bulk of its traffic other than that dealt with in private sidings. The London Midland Region proposes to reduce the total number of its wagon-load depots to some 180 ultimately, and some progress will have been made towards this by 1963. The handling of household coal is being examined in conjunction with traders. Further mechanised depots on the basis of that at Palace Gates, North London, described in our July 18, 1958, issue, are planned at Aldershot, Birkenhead, Carlisle, and Glasgow.

Marshalling Yards

Increased use of through services between major depots will reduce the need for many marshalling yards. Others will be amalgamated and modernised to reduce working expenses and to eliminate delays in transit. By 1963, it is expected that the total number of marshalling yards will have been reduced by some 200-300.

In the Eastern Region the new yard at Ripple Lane, Barking, will shortly be in service, and the Region's programme will be virtually completed by the remodelling of the up yard at Peterborough and the construction of a new down yard there. The London Midland Region plans a yard at Carlisle to replace eight smaller yards, and to remodel two other yards at Crewe and at Bescot with the object of enabling a further six yards to be closed.

In the North Eastern Region, nearly 70 small yards will be closed as a result of the partial reconstruction of 14 yards and construction of six new ones. The Scottish Region has two yards in service, at Thornton and Alloa, and two more under construction at Perth and at Millerhill. The Southern Region is developing plans for yards at Ashford and Tonbridge.

A scheme has been prepared foi diverting cross-London freight traffic, where necessary, by improving the capacity of the outer ring route via Bedford, Bletchley, Oxford, Reading, and Redhill. As a start, work has begun on building a flyover to enable east and west through traffic to avoid crossing the main line from Euston on the level at Bletchley, and on planning a new marshalling yard at Swanbourne, Bucks. The need to improve the outer ring route as a whole depends to some extent on a revival in heavy goods traffics, but the Bletchley flyover is an essential adjunct to the electrification of the main line from Euston to the North.

Improvements have been completed or are in progress at Harwich Parkeston Quay, Newhaven, Heysham, and Holyhead. Particular attention is being directed towards improved methods of cargo handling. Work is also in hand on related railway projects at Hither Green and Bricklayers' Arms to facilitate the handling of Continental freight traffic, especially in the case of train ferry wagons.

Research and Technical Development

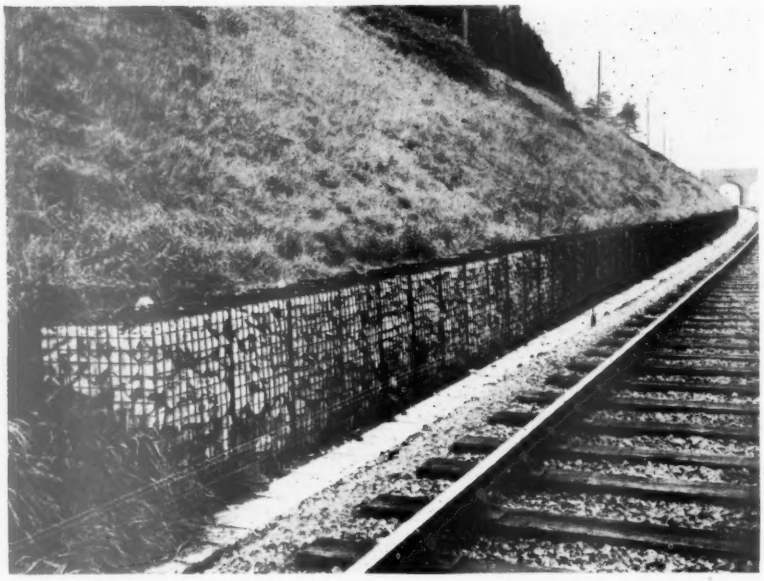
It is proposed to make a comprehensive study of the dynamics of the rail joint and of stresses in the rail; to investigate the use of computers for solving riding and other problems, and to make a general study of the dynamic characteristics of rolling stock.

A new engineering research laboratory is to be built at Derby incorporating large-scale static and dynamic testing equipment, capable of dealing with vehicle underframes, bridge girders, and concrete beams. There is no such equipment in existence in the country at present, and test work of this kind has to be carried out abroad. A new chemical research laboratory in North London is to be finished this year and will give improved facilities for studies such as the use of adhesives in the engineering field and the rate of wear of different textiles.

Technical developments which are expected to mature during the next five years or so include the use of plastic for rolling stock bodies and the use of new electronic apparatus for reducing the complexity and cost of control systems, particularly for traction equipment. The organisation for operational research and that for market research are being re-grouped and expanded.

Blanketing and Drainage at Lapworth, Western Region

Enlargement of cess and installation of pre-cast channel drain: retaining wall of 6-in. to 9-in. stone in Weldmesh crates



Completed retaining wall, showing concrete channel drain

BLANKETING and drainage work was carried out recently at Lapworth, British Railways, Western Region, in a deep clay cutting which was showing signs of minor slips in one or two places, whilst a number of springs near the toes of the slopes discharged a continual flow of water on to the cesses.

Crumbling Dry Stone Wall

The bottom of the cutting slope adjacent to the down relief line was supported by a dry stone wall which was crumbling badly because of the earth pressure behind it and the constant flow of spring water through it. The cess at this point was extremely narrow, with clay up to the bottom of sleeper level making it almost impossible to maintain properly the top or correct cant on the relief line.

Diversion of Spring Water

Several improvements were necessary. The most important was to intercept the spring water and divert it away from the permanent way. This was achieved by lowering and widening the cess to as near the standard dimensions as possible and installing a pre-cast concrete channel drain, using Taunton standard units. To carry out these measures the toe of the slope had to be cut back and a new retaining wall provided.

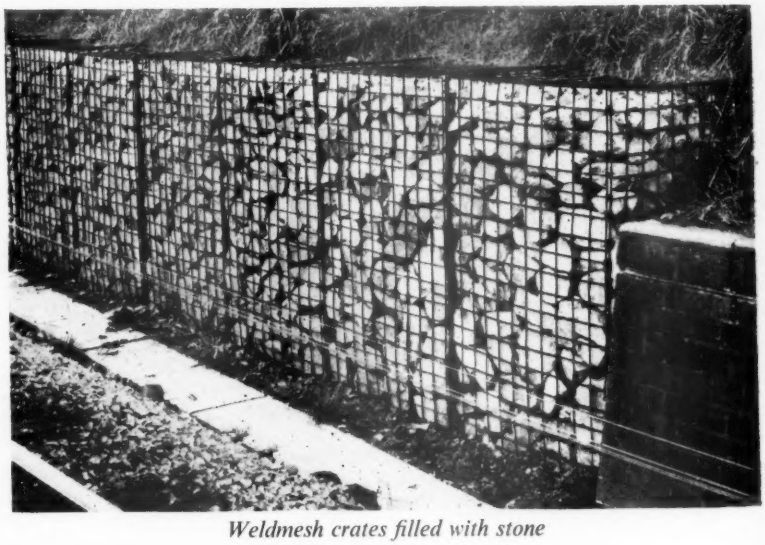
Gabion Wall

The decision to build a gabion wall was influenced by several factors. First, from an economy point of view, the stone in the existing wall could be used to provide part of the filling for the gabions. Second, speed of erection was most important because of the unstable nature of the slopes, especially if the weather had been wet. Once the Weldmesh crates had been positioned on a 6-in. bed of concrete they could be filled with stone reasonably quickly even with unskilled labour.

Finally, it was essential that the gabion wall, besides supporting the slope, should allow the spring water to pass freely through it into the channel drain.

Ten chains of wall were dealt with in this manner, using B.R.C. Weldmesh crates 2 ft. 9 in. square by 57 in. and 48 in high filled with 6 in. to 9 in. stone. To complete the work the permanent way was deep re-ballasted throughout and the formation graded to the channel drain.

The work was carried out under the direction of the Chief Civil Engineer of the Western Region, Mr. M. G. R. Smith, M.B.E., B.SC., M.I.C.E.

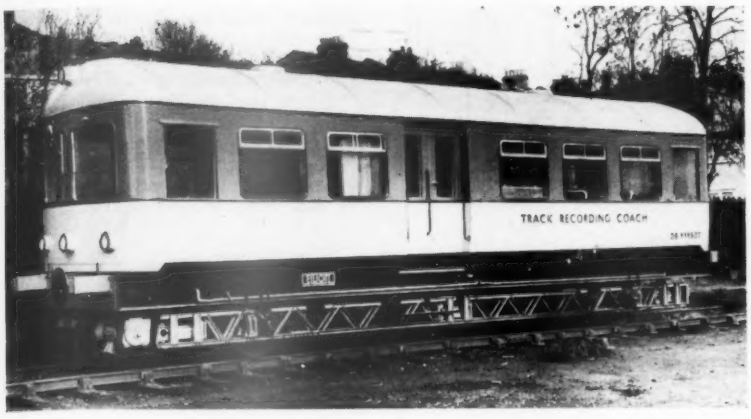


Weldmesh crates filled with stone

NEW ISLE OF WIGHT FERRY.—A diesel-engined ferry for British Railways, Southern Region, Isle of Wight service was launched recently at the shipyard at Troon, Ayrshire, of the Ailsa Shipbuilding Co. Ltd. The ceremony was performed by Mrs. Sinfield, wife of Mr. R. E. Sinfield, Shipping & Continental Manager, Southern Region. The new vessel, which will work on the Lymington-Yarmouth service was named *Freshwater*. It replaces an old coal-burning passenger ship of the same name. There will be accommodation for up to 620 passengers, depending on the number of cars and other loadings necessary. The new ship will also be able to make six round trips a day instead of the three normally made by the old *Freshwater*. Specially designed for the tortuous Lymington River, it has ramps at each end so that cars can be loaded by bow or stern. There are comfortable lounges and a small buffet for snacks. The overall length is 164 ft., breadth 42 ft. 6 in., loaded draught 6 ft., and gross tonnage 350 (approximately). The service speed will be 10½ knots. Propulsion is by two sets of Crossley EGN8/65 diesel engines developing a total of 640 b.h.p. Each engine drives a cycloidal Voith-Schneider propeller. The propellers are arranged at diagonally opposite corners of the ship to give high manoeuvreability. The vessel is to be equipped with V.H.F. radio telephone and Decca radar.

British Railways Track Recording Coach

Measurement of track conditions at speeds up to 30 m.p.h.



Track recording coach for British Railways

A NEW design of track recording coach has been developed for British Railways as part of the modernisation programme, as a result of trials conducted some years ago. It incorporates provision for assessing track conditions under a loaded vehicle while it is moving at speed over the track. The measurements are made in such a way as to make them independent of the movement of the vehicle. The techniques used were evolved after British Railways had undertaken tests of existing types of vehicles to compare their respective merits and suitability. Results of these tests indicated that none of these existing designs fully satisfied its requirements in respect of accuracy, reliability and other features.

The coach is a four-wheel self-propelled vehicle capable of being driven at either end. It can travel at any speed up to 30 m.p.h. when recording and is capable of speeds of 55 m.p.h. when not recording. It is completely self-contained in respect of power supplies for instrumentation and other purposes such as lighting and heating.

For the measurement of cant a datum is provided by a high-speed gyroscope which enables the vehicle to operate accurately at any speed within the above limits, regardless of curvature or gradient. Curvature and gauge are obtained by measuring the movements of a system of probes which contact the inside edge of the head of the rail. These probes are designed to negotiate track fittings at the maximum recording speed. They can be lifted clear of the rails when the car is not making a recording run or if any obstruction on the track makes it necessary.

Measurements are presented as traces on Kodak photosensitive paper in the multi-channel recorder which incorporates reflector type galvanometers. The special paper used gives a record which is immediately visible and requires no further treatment unless additional copies are required. As the record is being made a previous chart, taken over the same piece of track, can be viewed on an adjacent display. This comparison enables any deterioration to be seen immediately. Any maintenance work carried out since the previous run can also be checked.

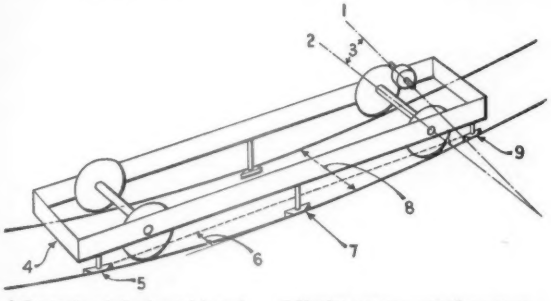
For the measurement of gauge and curvature, the probes are carried from a lattice girder framework supported at the axleboxes. So that the axles may follow the track without restraint, the points of support of this framework are arranged to give the necessary degrees of freedom permitting the axles to twist relatively in both vertical and lateral planes. In addition, "break-out" springs limit the shock which the framework receives when the wheels are subjected to severe vertical accelerations. The sensing probes are spring loaded against the rails and special guide shoes, running in the opposite flange way, ensure their passage through gaps at points and other fittings. At the actual opening in a crossing this guide shoe comes against the opposite check rail and prevents the sensing shoe from taking the wrong route.

Operation of Probes

Because of its small size, the probe is an extremely sensitive detecting element of low inertia giving immediate and accurate response to any deviation from line or gauge. When operating, the probes are held down by compressed air and can be withdrawn, clear of the track, when not in use. Raising and lowering is controlled through solenoid-operated valves. There is also a special emergency switch which enables the probes to be retracted by the observer if obstructions are seen on the track. Without stopping the vehicle, the probes can be lowered again on any piece of straight or curved track clear of points or other track fittings. The rubbing face of the probe consists of a welded deposit which can be renewed when required. At present the vehicle incorporates provision for measurement of curvature on one rail only. Irregularities on the other rail are deduced from the gauge record. Additional equipment to measure curvature on both rails can be readily added.

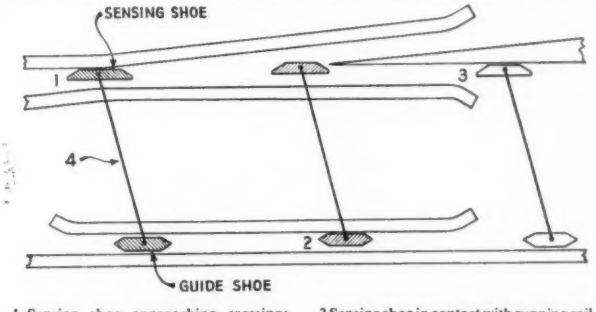
Measurement of Cant

Cant is measured by comparing the position of one of the axles with a datum provided by the gyroscope mounted immediately above this axle. The spin axis of this gyroscope is maintained horizontal across the coach at all times.



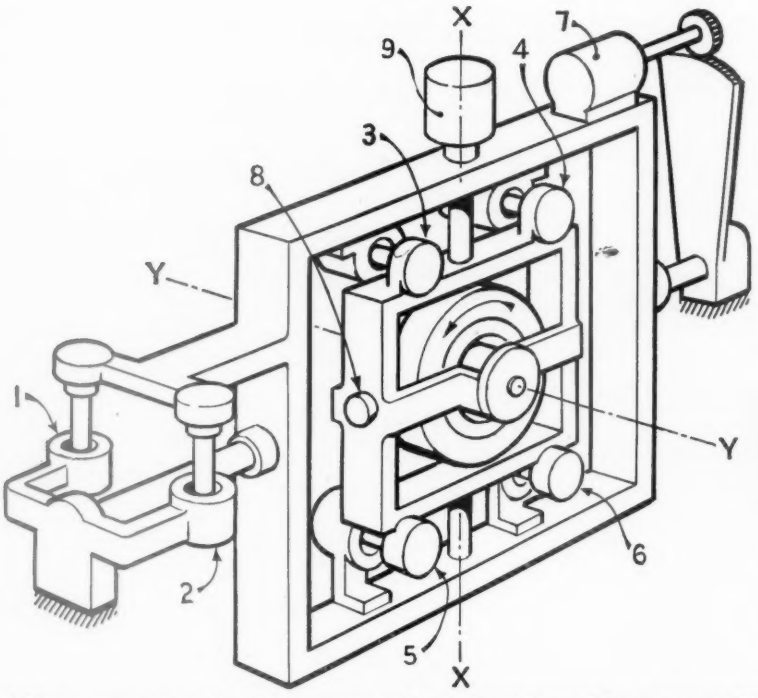
1 Gyro spin axis (horizontal datum)
2 Axle
3 Cant
4 Probe carrying frame
5 Sensing shoe
6 Versine measurement of curvature
7 Sensing shoe
8 Gauge
9 Sensing shoe

Diagram showing the measurements of curvature



1 Sensing shoe approaching crossing; guide shoe between opposite rail and check rail
2 Guide shoe prevents sensing shoe taking wrong route
3 Sensing shoe in contact with running rail before guide shoe leaves check rail
4 Tie bar contains compression member for negotiation of single-blade catch points

Successive positions of sensing shoe in negotiating a crossing



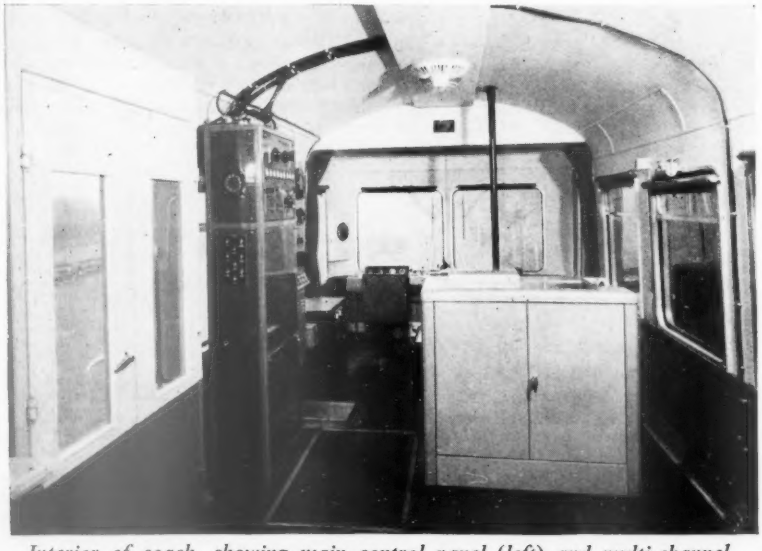
1 & 2 Torque motors to keep spin axis Y-Y across the vehicle
3 & 4 Torque motors compensate for centrifugal force on offset weight
5 & 6 Torque motors correct for earth's rotation effect in plant of cant measurement
7 Pick off for angle between floor and spin axis Y-Y
8 Offset weight which precesses gyro until axis, X-X is vertical
9 Pick off to operate torque motors

Horizontal gyroscopic datum for cant measurement

Correcting torques are applied to balance the effect of the earth's rotation and to allow for the movement of the vehicle around curves. The use of a gyroscope avoids the significant errors which can occur if a pendulum is used as a datum.

Measurements of curvature, gauge, and cant are obtained as a.c. signals from synchro type pick-offs. These signals are linearly demodulated and the resulting d.c. signals applied to high sensitivity mirror galvanometers. The record is produced by these galvanometers on a special photographic paper by the reflected beams from an ultra-violet light source.

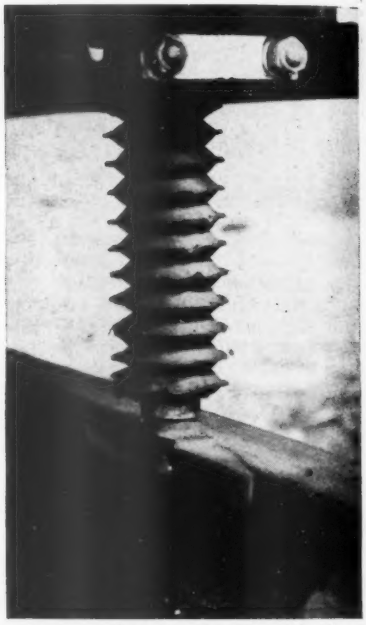
In addition to the main measurements, the record includes the speed of the vehicle, distance marking, facilities to indicate events such as stations, and space for making notes. The new record together with the "play-back" of a previous record are both fed through the recorder by a drive taken from one of the axleboxes; a choice of scales is provided.



Interior of coach, showing main control panel (left) and multi-channel recorder (right)

Design of Vehicle

The coach is a self-propelled four-wheel vehicle similar to the railbuses already in operation in several Regions of British Railways. There is a driver's and observer's position at each end. Propulsion is by a Meadows horizontal under-floor diesel engine developing 97 b.h.p., driving through a centrifugal clutch and epicyclic gearbox to the forward and reverse gearbox mounted on the driving axle. Gear changing is by electro-pneumatic valves; compressed air and hand brakes operate on the driving axle. Wheels and axles are carried in Timken double-tapered roller bearings. The axleboxes are secured to the frame by radius rods and the suspension is by overslung laminated springs carried in hangers fitted with rubber sandwich inserts. To improve the accuracy of cant measurement the wheels are coned to a taper of 1 in 100.



Sensing shoe in contact with the running rail

The main electrical supplies are provided by an Enfield diesel generator of 5 kW. capacity at 230V. d.c. From this output a Vernons alternator gives the 400 cycles per sec. supplies for the gyroscopes and synchros.

Leading particulars and dimensions of the vehicle are as follow:

Length over headstocks	38 ft.
Wheel base	24 ft.
Wheel diameter	3 ft.
Overall height	12 ft. 6 in.
Overall width	9 ft.
Axle loading	12 tons
Fuel capacity	140 gal.

The coach was developed by Elliott Bros. (London) Ltd., one of the companies in the Elliott-Automation Group, in conjunction with the British Transport Commission Research & Development Engineers. The vehicle was designed and built by D. Wickham & Co. Ltd., to meet the specification of the Elliott engineers.

RAILWAY NEWS SECTION

PERSONAL

Mr. H. D. Singh, a Director of the Indian Railway Board, has been appointed Senior Deputy General Manager, Eastern Railway.

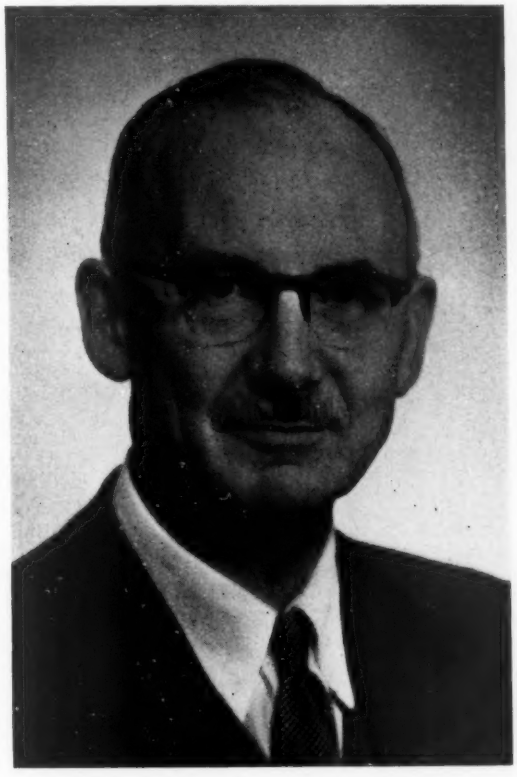
Sir Ronald W. Matthews, J.P., D.L., M.Inst.T., Chairman of the London & North Eastern Railway Company, from 1938 to 1948, whose death, on July 1 at the age of 74, was recorded in last week's issue was Deputy Chairman, at the time of his death, of the Independent Television Authority. Sir Ronald Matthews was also Chairman of the Brush Group, 1938-56. He was educated at Eton and began his career in the family business of Turton Bros. & Matthews Limited of which company he later became Managing Director. During the 1914-18 war he served in Belgium and France with the 5th King's Own Yorkshire Light Infantry, attaining the rank of Captain. In 1922, at the age of 37, he was elected Master Cutler of Sheffield, and was the youngest holder of that office in the history of the company. He joined the board of the L.N.E.R. in 1929, and subsequently became Chairman of the Stores Committee and of the Southern Area Board, before becoming Chairman of the L.N.E.R. in 1938. He became Chairman of the Brush Electrical Engineering Co. Ltd. in the same year, an appointment he relinquished in 1956. Sir Ronald Matthews, who was knighted in 1934, was President of the Association of British Chambers of Commerce, 1940-42. He was appointed Deputy Chairman of the Independent Television Authority in February, 1955. In 1948 he was made a Knight in the Order of St. John of Jerusalem. He was President of the Railway Benevolent Fund for 1952. At the time of his death he was Chairman & Joint Managing Director of Turton Brothers & Matthews Limited; Chairman of Century Drill & Works Limited, General Refractories Limited and subsidiaries, J. P. Skinner & Co. Ltd., Phillips Furnishing Stores Limited, and Sheffield Building Society; Director of British Holiday Estates Limited, Dean & Dawson Limited, Gresham Fire & Accident Insurance Society Limited, Gresham Life Assurance Society Limited, Legal & General Assurance Society Limited (Deputy Chairman), National Provincial Bank Limited and of Thos. Cook & Son Ltd., and subsidiaries. Sir Ronald Matthews was a Fellow of the Institute of Directors.

A Memorial Service was held at Sheffield Cathedral on July 10. The Very Reverend J. Howard Cruse officiated and the Bishop of Sheffield gave the address. The lesson was read by Mr. J. B. Peile, Director, Turton Brothers & Matthews Limited. In addition to family mourners the following were present:

British Transport Commission
Lord Rusholme, Mr. E. A. W. Dickson.
Eastern Region, British Railways
Mr. C. S. Wood (also representing Messrs. H. C. Johnson, James Ness and A. J. White). Messrs. P. Lyle, E. D. Trask, C. G. Gold (also representing Messrs. J. F. Harrison and R. A. Smeddle), G. F. Fiennes, F. A. Gilberthorpe (also representing Mr. E. K. Portman-Dixon), E. J. Stephens, S. C. Webb, S. Kelsey, E. R. Williams (also representing Mr. R. B. Temple), W. Grant (also representing Mr. A. K. Terris), A. F. Luckett (also representing Mr. L. A. A. Taylor), F. Masdin, T. Little, P. Williamson.
Southern Region, British Railways
Mr. C. P. Hopkins.
Thos. Cook & Son Ltd.
Mr. A. J. Turner.
Retired Officer
Sir Charles Newton.

Mr. Harry Norman Edwards, M.I.Loco.E., Managing Director, Metropolitan-Cammell Carriage & Wagon Co. Ltd., who has recently been appointed in addition Chairman of the board, succeeds the late Sir Archibald J. Boyd. Mr. Edwards was educated at the Merchant Venturers Technical College, Bristol and entered the Drawing Office of the Bristol Wagon & Carriage Works in 1910. On the outbreak of war in 1914 he enlisted in the 1/6th Gloucestershire Regiment and subsequently was commissioned in the Machine Gun Corps (Heavy Branch), later Tank Corps, and was mentioned in dispatches. Mr. Edwards rejoined Bristol Wagon Works and after their absorption by Cammell Laird & Company in 1923, he was transferred to The Midland Railway-Carriage & Wagon Co. Ltd. Birmingham. In 1926 he was appointed Liaison Officer to the late Mr. Arthur S. Bailey, then Managing Director of the rolling stock subsidiary companies of Cammell Laird & Co. Ltd., with headquarters at Nottingham. In January, 1929, when these interests were merged with the Metropolitan Carriage Wagon & Finance Co. Ltd., he moved to the Saltley Head Office of the new organisa-

The Late Sir Ronald W. Matthews
Chairman, London & North Eastern Railway Company, 1938-48



Mr. H. N. Edwards
Appointed Chairman, Metropolitan-Cammell Carriage & Wagon Co. Ltd.

tion—Metropolitan-Cammell Carriage & Wagon Co. Ltd.—later becoming Commercial Assistant to the General Manager. Mr. Edwards was appointed Commercial Manager of the company in 1936, Special Director in 1947, Assistant Managing Director, with a seat on the board, in 1948, and Managing Director in 1954. During the 1939-45 war Mr. Edwards commanded "B" Company of the 37th Warwickshire (Birmingham) Battalion Home Guard. Mr. Edwards is also a Director of Patent Shaft Steel Works Limited, G. H. Sheffield & Co. (Engineers) Ltd., Metropolitan-Cammell-Weymann Limited, Metropolitan Railcars Limited, Metropolitan-Cammell Carriage & Wagon Company Africa (Pty.) Ltd. and

cal & Electrical Engineer (Maintenance), North Eastern Region.

Through a printer's error, in last week's issue, it was incorrectly stated that Mr. J. H. Hambidge, appointed District Operating Superintendent, Birmingham (New Street), London Midland Region, British Railways, began his career as a train operator; this should have read a train reporter.

Mr. George A. Walker, Q.C., D.C.L., Chairman, Canadian Pacific Railway, 1948-55, whose death on June 8, at the age of 80, was recorded in a recent issue, began his career in 1890, in the Law Department of the C.P.R., in Toronto. Mr. Walker subsequently transferred to Calgary and, after 23

Dyke, formerly Chief Electrical Engineer, Cordoba Central Railway.

Mr. George A. Hicks, V.D., F.C.G.I., M.I.C.E., Chief Engineer, Burma Railways, 1921-34, whose death on June 27, at the age of 80, after a long illness, was recorded in a recent issue, was educated at Frankfurt-on-Main, 1887-95, and the Central Technical College, 1896-99. From 1899 to 1903, he gained experience with various contracting companies engaged on harbour works at Plymouth, Folkestone and Dover. In 1903 he joined the Burma Railways. During his first year he worked as Personal Assistant to the Chief Engineer, and was then appointed Assistant Engineer-in-Charge of Construction

The Late Mr. George A. Walker
Chairman, Canadian Pacific Railway, 1948-55

The Late Mr. George A. Hicks
Chief Engineer, Burma Railways, 1921-34

Zambesi Coachworks Limited of Southern Rhodesia.

Sir John Elliot has joined the board of the Colonial Development Corporation for a period of three years from the beginning of July. He has also been appointed a Director of Thomas Tilling Limited.

Following the retirement, recorded in our May 8 issue, of Mr. K. J. Cook, Chief Mechanical Engineer, Eastern & North Eastern Regions, British Railways, Mr. M. G. Burrows, Chief Mechanical Engineer, North Eastern Region, has now taken over the responsibility for all mechanical and electrical matters in the North Eastern Region. Mr. A. S. Bamworth, Assistant Mechanical Engineer (Carriage & Wagons), North Eastern Region, has been re-designated Mechanical & Electrical Engineer (Workshops). Mr. T. Matthewson-Dick, Assistant Motive Power Superintendent, York, North Eastern Region, has been appointed Mechani-

years as solicitor in that city, he went to Montreal, in 1934, as Assistant General Solicitor. He was General Solicitor for nine years, before being appointed Vice-President & General Counsel, in 1945. A graduate of Osgoode Hall, he was called to the Bar of Ontario in 1906, and became a barrister in the Toronto Law Department office. He was made a member of the Bar of Alberta (1911) and of British Columbia (1913), being created a King's Counsel in 1916. He was appointed a Governor of McGill University in 1952 and was a Life Governor of the Montreal General Hospital. While in Calgary he acted for six months as Manager of the Department of Natural Resources. In 1947 he was appointed a Director of the C.P.R. and a month later he became Vice-President and a member of the Executive Committee. Mr. Walker became Chairman in 1948, a position he relinquished in 1955.

We regret to record the death in Buenos Aires, at the age of 80, of Mr. R. H. Haven-

on the Pegu-Moulmein branch line. In 1907 he was appointed Executive Engineer in charge of the whole construction of 160 miles. In 1912 he was promoted to be District Engineer, and in 1916 he officiated as Deputy Chief Engineer. In 1919 he officiated as Chief Engineer, and in 1921 was confirmed in this post in which capacity he served until his retirement in 1934. During his period of office as Chief Engineer, the Burma Railway Company, as it then was, embarked on a large programme of expansion, and he was responsible for railway extensions and construction amounting to over 574 miles. Among the larger bridges built were the Pazundaung, Myitnge, Taungbon Choung and Pyu. The major bridge construction under his responsibility was the combined road and rail Ava Bridge, across the Irrawaddy, near Mandalay. In addition, Mr. Hicks carried out major expansion and remodelling to stations and locomotive shops. In May, 1933, he acted as Agent for the Burma Railways.

Mr. G. J. Hastie, Chief Mechanical Engineer, Tasmanian Government Railways, has been appointed General Manager of the Railways, and Associate Commissioner of the Transport Commission of Tasmania.

Professor E. R. Hondelink, Adviser on Transport, International Bank for Reconstruction & Development (World Bank), recently visited Nairobi. He discussed with Mr. J. R. Farquharson, General Manager, East African Railways & Harbours, the problems of communication within and between the East African Territories.

Sir Maurice W. Brayshay, M.Sc., A.M.I.C.E., Agent for the Bombay Baroda & Central India Railway, 1932-38, and formerly Member of the Indian Railway Board, whose death on August 2, at the age of 76, was recorded in a recent issue was educated at Ripon Grammar School and at Leeds University. After a period in engineering in this country, he joined the Indian State Railways, in 1905, and became Executive Engineer eight years later. He was then promoted to be Assistant Secretary of the Indian Railway Board and, in 1924, was lent to the Bombay Baroda & Central Indian Railway with which he remained until 1929. Subsequently he became a member of the Indian Railway Board, from which he retired in 1932. and he was then appointed Agent to the Bombay Baroda & Central. Later he acted as Chief Commissioner of the Government of India Railways in 1933 and 1935. He retired from this position in 1938. He was knighted in 1934.

Mr. J. H. Fraser, Chief Signal Engineer, British Railways Central Staff, retires on September 12. He will be succeeded by Mr. A. W. Woodbridge, who is at present Signal Engineer of the Western Region of British Railways.

Mr. A. E. Taylor, Head of the Sales and Development Section, Great Northern Line Traffic Manager's Office, Eastern Region, British Railways, has been appointed Commercial Superintendent, London Tilbury & Southend Line.

Mr. N. R. Crump, President of the Canadian Pacific Railway, has been awarded the Julian C. Smith Medal of the Engineering Institute of Canada. The award is made annually for "achievement in the development of Canada."

Mr. G. E. Carter, Passenger Traffic Manager Montreal, Canadian Pacific Railway, has retired. He has been succeeded by Mr. H. A. Lee, Passenger Traffic Manager, Winnipeg. Mr. A. J. Mahon, General Passenger Agent, Montreal, becomes Passenger Traffic Manager, Winnipeg. Mr. J. M. LeMay, Assistant to the General Passenger Traffic Manager, Montreal, becomes General Passenger Agent, Montreal, and Mr. E. C. Puddington, District Passenger Agent, Sudbury, has been made District Passenger Agent, Toronto.

Under the reorganisation of the Stores Departments of the Eastern and North Eastern Regions, British Railways, the following changes have been made: Mr. W. McKie, Stores Superintendent, Eastern & North Eastern Regions, will retire later this year, and the joint Stores Department will be replaced by separate Supplies Organisations in each region. Mr. O. R. Smart, Principal Assistant to the General Manager, Eastern Region, has been appointed Supplies & Contracts Manager, Eastern Region, with headquarters at Kings Cross. Mr. H. Bell, Principal Assistant to the General Manager, North Eastern Region, becomes Supplies & Contracts Manager, York.

We regret to record the death on August 12, at the age of 53, of Mr. Percy Stephenson, Regional Staff & Establishments Officer, North Eastern Region, British Railways.

Mr. A. G. Dixon, Chief Motive Power Inspector, Line Traffic Manager's Office, Great Northern Line, Eastern Region, British Railways, was awarded the B.E.M. in the recent Birthday Honours.

Mr. W. R. Wright, Director of Public Relations & Advertising, Canadian National Railways, will relinquish that position, in October, to take up an appointment outside the railways. Mr. Wright joined the C.N.R. in 1954, as Special Assistant to the President, and in October, the same year, was appointed Director of Public Relations.

C.P.R. Reorganisation

Reference is made elsewhere in this issue to the reorganisation of the Canadian Pacific Railway. The following officers have been appointed to take charge of the newly-created regions:

Atlantic Region

Mr. J. R. Strother, General Manager, Eastern Region, Toronto, becomes General Manager, Atlantic Region.

Eastern Region

Mr. S. M. Gossage Vice-President, Eastern Region, becomes Vice-President & General Manager of that region.

Prairie Region

Mr. G. E. Mayne, Vice-President, Prairie Region, becomes Vice-President & General Manager of that region.

Pacific Region

Mr. J. N. Fraine, Vice-President, Pacific Region, becomes Vice-President & General Manager of that region.

Members of the British Transport Commission in Session

Insets:—Lord Rusholme, Sir Philip Warter. Seated, left to right:—Sir Reginald Wilson, Sir Cecil Weir, Mr. K. W. C. Grand, Mr. R. F. Hanks, Mr. D. H. Cameron of Lochiel, Sir Ian Bolton, Sir Brian Robertson, Sir John Benstead, Mr. A. B. B. Valentine, Mr. J. Ratter, Mr. H. P. Barker, Sir Leonard Sinclair, Mr. T. H. Summerson

NEW EQUIPMENT AND PROCESSES

Travelling Spray Booth

A TRAVELLING spray booth has been designed for more efficient and cheaper painting of rolling-stock and diesel and electric railway engines.

In operation, the booth straddles the vehicle to be painted and travels backwards and forwards under its own power at any speed up to 25 ft. per min., filtering, washing and exhausting the air from the painting area. Electric power is supplied through a feed rail running the full length of the shop, with a pick-up arm mounted on top of the booth.

The booth measures 12½ ft. long, 17½ ft. wide and about 16½ ft. high from the floor, and runs along two rails parallel to and outside the normal gauge rails. On each side is a 7 ft. long compartment for the painter, who stands on a steel floor which can be raised or lowered by compressed air. To permit effective coverage of the ends of a vehicle, each platform is fitted with a hinged steel extension that can be lowered to enable the painter to stand facing his half of the vehicle and at any height: electrical interlocks prevent movement of the booth while an extension is in use. Each platform is fitted with an air transformer and pressure regulator to which the painter attaches a standard pressure painting unit by a length of hose. Each man adjusts the height of his own platform and the chief operator controls the positioning and movement of the booth by a switch operating electrically-powered hydraulic motors driving road wheels through V-belts and reduction gear: emergency stop buttons are located on each platform. Lighting is by vertical banks of 5 ft. glass-enclosed, explosion-proof fluorescent fittings, designed to give extremely good working conditions. An air-wash exhaust system, water pump, exhaust fan, air regulator, air compressor and explosion-proof electrical control system are on each side of the booth.

Two 10 h.p. compressors of two-cylinder single-stage air-cooled type, driven through V-belts by electric motors, supply air at 100 lb. per sq. in. to provide power for actuating the platforms and operating the spray guns. The air pressure for the guns is adjusted by air transformers attached to each platform. The air-wash units comprise water supply tank, air washing sections, overflow, drain and pump intake connections, drain sump with strainer, and pump intake strainer screens.

During spraying, the booth-mounted exhaust fans draw the air and paint overspray through high pressure water sprays in the air-wash chambers, where the air is cleaned and discharged into exhaust ducts feeding into a fixed exhaust duct over the centreline of the track. So that the exhaust can be taken to outside atmosphere, the bottom of this duct consists of a series of pivoted louvres opened by cams on the top of the booth. Two input fans are situated in the roof of the booth immediately over the operator's area, connected to a glass fibre filter box.

A completely automatic fire extinguishing system is installed in the booth. At any temperature above the setting of fusible bulbs fitted in the booth, an automatic electric switch cuts out, stopping the exhaust fans and causing baffle plates to drop over the exhaust openings adjoining the painter's platforms. Carbon dioxide, stored in pressure cylinders, is then immediately released and blankets the spraying area.

The following advantages are claimed for the booth:—

The considerably reduced working space requires fewer lights, drains, and water lines.

As the booth can also be used for surface preparation, scaffolding and staging are entirely eliminated.

The booth can be installed without affecting the superstructure of the building.

A larger floor space is available when painting is not being carried out: the travelling booth occupies a total area of only 216 sq. ft. compared with an average of 2,000 sq. ft. required for a fixed booth.

Fire hazards involved in lacquer and enamel spraying in the conventional down-draught booth are eliminated.

More effective supervision of the painting operation is possible, because there is better visual control over the entire paint shop area.

The movement of rolling-stock is much reduced, as the booth can travel along a train of stationary vehicles.

There is a very substantial saving in labour, paint and power.

Further details can be obtained from the manufacturer, the Aerograph DeVilbiss Co. Ltd., 47, Holborn Viaduct, London, E.C.1.

New Tyre under Development

A NEW tyre, the RB 6, is in experimental production. Of all-steel construction, it is made by a new process which enables tyres to be produced within closer tolerances than have been possible before. Its characteristics are especially attractive to commercial vehicle operators.

The RB 6 has a single-ply casing in which the steel cords run at an angle of 90 deg. to the rim. Between casing and tread are bracing strips of steel fabric and steel is used for all the other components normally made from textiles. The tread pattern is designed to take full advantage of the casing characteristics. Manufacture is carried out on a new type of machine specially developed for the manufacture of steel casings.

The following advantages are claimed for the new tyre: longer tread life; greater comfort (particularly noticeable over "cats-eyes" and other small irregularities); high loading capacity; economy in weight; cooler running; and greater wet, snow, and mud grip.

Priority is being given to pilot production

in the 9.00-20 size. Other sizes are also being developed, but it should be emphasised that the tyre is not yet out of the development stage. Although results so far obtained are promising, there are still problems to solve before the tyre can be included in the current price list.

Further details can be obtained from the manufacturer, the Dunlop Rubber Co. Ltd., 10-12, King Street, St. James's, London, S.W.1.

One-Piece Moulded Container

A PLASTIC five-ton container has been developed for British Railways, and was on recent exhibition at Olympia. The container is the first of six models to go into experimental service on British Railways.

It is virtually indestructible and calls for little unkeep; it can be used for general goods and those requiring insulation, and it can be handled by fork truck or crane and stacked three high.

In reasonable quantity, production cost can equal that of conventional constructions for the transport of general freight, and is less than that of ordinary insulated containers of the normal type. A conventional insulated container which would have the same "K" factor would offer less load space within similar external dimensions because of the thickness of its insulating medium.

The container is laid up in a complete mould, from which it emerges as an integrally-made unit of great strength. Pigmented inner and outer skins of glass-fibre reinforced polyester resin enclose layers of expanded polyurethane. The floor has a rough molocite granolithic-type finish which may be rendered additionally non-skid by a rough sand finish or suitable strips.

Painting is unnecessary. Signwriting is in the form of inlaid plastic panels, produced to a method developed by the research division of British Railways.

Advantages of one-piece moulding are as follow: economy in production, reflected in competitive first cost, long life; freedom from corrosion; minimal upkeep—only routine inspection is necessary. When damage occurs, this can be repaired by semi-skilled labour.

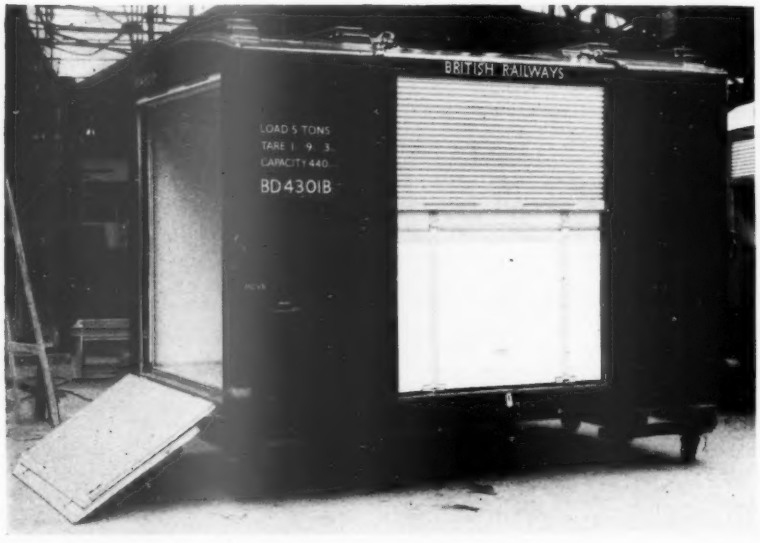
The unit has three doors, which are pivoted at the base on sliding hinges and hinged horizontally across the centre. To open, the upper section is dropped down against the lower, after which both parts are dropped together, or they can be employed as loading ramps. As such they can support a stillage truck. Faces of the sections meeting across the centre are angled so that they form a chamfered edge to the ramp, presenting a good surface for wheeled appliances.

When closed, the doors abut against hermetic seals. Further protection is given by sliding shutters of corrugated plastic which retract into the roof when lifted.

The "box" has a steel sub-frame with two longitudinals and four cross-members of top-hat section. Indentations on the underside correspond to contours of the cross-members. The forks of a lifting truck can be inserted in the innermost cross-members so that the whole container can be raised and handled like a five-ton box pallet.

Two spreader bars built into the roof section take the stresses imposed by crane-lifts. Lifting bars run from the sub-frame with eyes at roof level. Other than at top and bottom, there is no attachment of the lifting bars to the sides.

Parallel to the spreader bars at the extreme ends of the roof are two further shoulders or ridges. Their outer ends and those of the spreader bars are stepped in alignment with the spacing of the longitudinals of the sub-frame. Thus, when one container is superimposed on another, the longitudinals of the upper nest with the roof of the lower. An indent in the side accommodates the label clip, an accessory normally fixed proud of the surface.



The unit is of a nominal 440 cu. ft. and built in collaboration with British Railways, and therefore to dimensions specified. Other sizes could be supplied. Overall dimensions are: 11 ft. 9 in. x 7 ft. 4 in. x 8 ft.

Interior measurements are: 11 ft. 3 in. long x 6 ft. 9 in. wide x 6 ft. 7 in. high. The rear aperture is 5 ft. 6 in. wide x 6 ft. 1 in., high and side apertures 4 ft. 10 in. x 6 ft. 1 in.

At a tare weight of 1 ton 9 cwt., the container is about a third lighter than a unit of traditional type.

Materials used were supplied by Beck Koller.

Further details can be obtained from the manufacturer, Mickleover Transport Ltd., Twyford Works, Whitby Avenue, Park Royal, London, N.W.10.

Portal Wagon for Bulk Goods

A FOUR-WHEEL portal hopper wagon has been developed for the transport of all kinds of bulk goods. Its elevated body allows direct discharge into road trucks or to conveyor belts. Loading capacities are 19, 23, and 27 tons. Within these limits, the vehicle additionally can move two open 5-ton Eos containers. These are suspended in the wagon centre.

The two U.I.C. roller-bearing wheelsets are of No. 88 construction. Springs are laminated and suspended in standard square spring links. Ring spring buffers with a scope of 75 mm. and 50-ton maximum resistance are fitted at each end of the wagon and KE and hand screw-brakes are provided.

Wall sheeting is of steel and copper alloy, and the body is of welded construction and hoppered for discharge by gravity through eight outlets. Doors are operated individually by hand levers mounted on the end platform. One or more road trucks with moderately high side walls can be placed simultaneously against the clearance of the portal for direct loading.

Dimensions are as follow: length over headstocks—10.3 metres; maximum height above railhead—4 metres; wheelbase—7.06 metres; portal clearance — height, 2.15 metres, width, 5.26 metres; volume—32 cu. metres. Wagon tare is 12,900 kg.

Further details can be obtained from the manufacturer, Waggonfabrik Talbot, Aachen, Germany.

Self-Adhesive Labelling

PRESSON is a self-adhesive labelling system which will stick to any clean, flat surface without causing damage. It will

remain in position indefinitely, although it can be easily removed and re-used, if desired. The units are supplied boxed in sets of 12, and loose. Spare insert cards are available. Prices and further details can be obtained from the manufacturer, Precision Components (Barnet) Limited, 13 Byng Road, Barnet, Herts.

Dockside Cargo Crane

A CARGO crane of entirely new design has been developed which can lift 5 tons at 80 ft. rad. or 6 tons at 70 ft. rad. the latter with its shorter jib being no heavier than the former. To change from one type to the other it is only necessary to replace the jib and apex and alter the hoist motor

speed. The crane can be adapted for occasional grabbing duties.

Advantages are claimed to include easier and more flexible control; reduced maintenance costs; lower centre of gravity; increased operating speed; shorter minimum lifting radius; substantial reduction in total weight; lower power consumption, and simplification of site assembly.

The crane is of welded construction using the minimum number of members bolted together at site. Secondary and breaking-up members have been eliminated where possible by increasing the strength of main members, which are generally tubular. The jib is straight, balanced in all positions, and has only one pulley spindle at the head. It is supported by a cross axle integral with the jib which turns in split trunnion bearings bolted to the superstructure.

Luffing is by a single central hydraulic ram which ensures smooth acceleration and deceleration of the jib in all positions. Luffing is controlled by the driver. A specially-developed Ward-Leonard set drives the hoist winch through double helical and spur gearing. An exciter, energised by the current in the armature loop circuit, simultaneously controls the winch motor field and generator field. The slew motor drives the slew pinion through a fluid coupling and a train of spur gearing. All machinery, except for the travel gear and the luffing ram, is inside the machinery house. The crane conforms generally to, and, in some respects, exceeds, B.S. 2452: 1954.

Further information can be obtained from the manufacturer, Stothert & Pitt Limited, Newark Works, Bath.

Threading Machine

THE " Maiden " 2-in. type " A " threading machine is a simple and inexpensive threading machine designed specifically for maintenance work. It is extremely versatile, having a capacity of ¼ in. to 2 in. B.S.P. and electric conduit, also ⅜ in. to 1½ in. Whitworth bolts. It is compact and sufficiently light to be easily transportable.

The headstock, cast solid with the bed, totally encloses the gears which are mounted on shafts carried in replaceable bushes. Lubrication is automatic. The adjustable chaser dies can be readily opened to permit work to be withdrawn without winding back, and can be instantly reset to size by an adjustable stop. The narrow guided saddle incorporates a self-centring vice having jaws with replaceable nut inserts. Automatic coolant equipment is built into the machine and ample provision is made for the storage and easy removal of swarf.

Cost is £204 complete. A larger model also is available with capacity of ¼ in. to 4 in. tubes and ¼ in. to 2 in. bolts. Further information can be obtained from the manufacturer, Landis Machine-Maiden Limited, Maiden Division, Hyde, Cheshire.

Cutting Attachment for Power Tools

THE Surcut cutting disc kit is the first of a new range of surfacing and cutting tools. It comprises a 5-in. dia. perforated cutter, back plate, and universal adaptor. This enables the cutter to be used on any portable electric drill.

The cutter cleans and smoothes wood block or boarded floors and decking, and removes paint and varnish without clogging

or damaging the material beneath. It will shape wood, plastic, compositions, and non-ferrous metals, achieving a good finish.

The disc is of hardened and tempered tough steel with 108 teeth so arranged that cutting can be carried out right up to its perimeter. Swarf passes to the back via a hole in the front of each tooth, and is discharged away from the operator.

Price complete is 17s. 6d. Further details can be obtained from the Surform Division of Simmonds Aerocessories Limited, Sales Office, Stornoway House, St. James's, London, S.W.1.

Spring Tester

THE Britool spring tester accepts valve or clutch springs up to 4 in. long and of 200-lb. capacity. Separate scale readings are given in pounds and kilogrammes and the rule-stop gauge is calibrated in inches and millimeters. Mountable upright or at an angle, it is easily converted to check the manufacturer's torque wrenches. These, also illustrated, now combine right- and left-hand operation. Further details can be obtained from Jenks Brothers Limited, Britool Works, Bushbury, Wolverhampton.

Parliamentary Notes

Commons Debate B.T.C. 1958 Report and Revised Railway Modernisation Plan

Criticisms of financial provision for British Railways and of excessive withdrawals of services

Mr. G. R. H. Nugent, Parliamentary Secretary, Ministry of Transport & Civil Aviation (Guildford—Con.), in the House of Commons on July 29, moved that the House take note of the report and accounts of the British Transport Commission for 1958 and of the report re-appraising the plan for the modernisation and re-equipment of British Railways.

He said that although 1958 was a year of setback in finance, it was also a year of great progress in mechanical and engineering work.

The trend of passenger traffics since 1955, he added, had been steadily upward, and showed that modernisation was beginning to have its effect. Where electrification had been carried out already there had been a 20-30 per cent increase in traffics. In goods traffic there had been a decline which was about £30 million down on the year. Much work had been done to modernise goods services. About 35 per cent of all goods train mileage was now worked by express brake-fitted trains. The Commission had closed 270 goods depots and yards. Modernisation of marshalling yards continued. The current freight rates during the year showed that the railways were fully competitive.

Re-appraisal of Modernisation Plan

The Government saw nothing in the report to deter it from maintaining the general policy of supporting the Commission's swift modernisation of the railways.

The new ceiling for passenger fares had been approved, and the Commission was considering what actual revisions it should make. The Commission recognised that it was dealing in a very sensitive market. The Government had asked the B.T.C. to do as much as possible to design the fare structure so as to provide an incentive to spread the peak of commuter travel.

The Commission had also asked for an increase in the rate of capital spending in the next four years. This year capital spending was £212 million, £178 million of it for the railways. The Commission asked, for the railways alone, for an extra £9,000,000 next year, rising to an extra £32,000,000 in the coming years. He could only say at this stage that the Government would give careful attention to the programme.

Uneconomic Services

The B.T.C. planned to proceed with the elimination of uneconomic services. It forecast that some 10 per cent of the total railway mileage should be closed down in the coming four years. Where these were passenger services, it would inevitably inconvenience the few remaining travellers who use them, but it was impossible to carry out the rationalisation without some inconvenience to some people in some places. The Minister and he broadly supported the Commission in this difficult operation.

Regional Accountability

Consideration would be given to any suggestion by Sir Brian Robertson about the financial structure, but before considering a change from the present structure of central authority with straight obligations to repay interest and capital, they must be sure it would strengthen financial discipline and accountability rather than the reverse. He would not contend that the present structure was ideal. It might be that they could think of something better. Regional accountability had been suggested, and this would be included among the suggestions considered. It was in line with the Government policy of increasing Regional policy and autonomy.

Last year the total manpower of the railways had been reduced by 23,000. That kind of reduction would continue, and might even be accelerated. The Commission had been able to obtain a spirit of co-operation, and the help of the trade unions in dealing with the problem of reducing jobs, switching men from one job to another, and in the last resort redundancy.

Railway modernisation was ahead of schedule. But satisfaction must be tinged with caution in the face of evidence of a stiffening in the struggle to hold traffic, and even more so to increase it. Nevertheless the forecast did justify the Government in giving the Commission full support in the task of modernisation.

Mr. Ernest Davies (Enfield E.—Lab.) moved an amendment to add: "and while welcoming the progress being made in the modernisation and re-equipment of the railways, regrets the actions of H.M. Government which have damaged the financial solvency of the B.T.C. and led to the curtailment in the services it should render in the national interest."

The Government plan for financing deficits, he said, was a crazy plan and a crippling form of financing. The re-appraisal estimated that the working surplus could be on the present basis, £50 million to £100 million by 1963. If interest was to be £90 million in 1963, rising to £110 million in 1965, on the most optimistic estimate, there was bound to be a deficit. The Commission could not escape from operating on a deficit.

Since 1951 the Government had followed a destructive transport policy directed against the Commission and in favour of private enterprise, particularly its political friends, road haulage.

Excessive Closings

It was necessary, he continued, to draw a line to limit the extent to which cuts in services should continue. Attracting new traffics was the answer to the difficulties of the railways, not the elimination of essential services.

He knew that the policy of contraction had gone further, and was planned in the re-appraisal report to go much further, than the top executives in railway administration and even the Minister's favourite children, the Area Boards, favoured. They were opposed to the extent of the curtailment.

The Opposition welcomed the operational achievements of the Commission which more than justified the nationalisation of transport. They supported in principle the modernisation as now reappraised in the report, which confirmed the view long held by the Opposition that, but for the policies and actions of the Government and of the present Minister in particular, the transport finances would not have deteriorated to the point where the maintenance of the transport system in the national interest was in great danger.

Mr. G. S. Lindgren (Wellingborough—Lab.) said that the workers on the railways considered Mr. Watkinson to be the worst Minister of Transport this country had ever seen. They had no confidence in him. They welcomed the modernisation plan and would do anything they could to assist it.

Mr. J. Peyton (Yeovil—Con.) said they had been left in the dark about the intentions of the Opposition in regard to transport. He understood that a high-powered committee of the Labour Party had been studying these matters for two-and-a-half years, but as yet it had produced no coherent policy.

Separation Needed for Efficiency

Mr. Charles Hobson (Keighley—Lab.) said the Ministry of Transport was far too big, dealing with many forms of transport. It would have to be broken up. The same applied to the B.T.C. He had the highest personal regard for Sir Brian Robertson but no one man could possibly control the railways, docks, shipping, canals and other properties the Commission owned, as they should be controlled.

Mr. Holt (Bolton West—L.) said that during the interim period while the reorganisation programme was being carried out, the Minister of Transport should use his powers with more determination to see that the policy of the Government was carried out. All that Parliament heard from the Commission was what it was going to do in the future.

It was not fair to tell the Commission that it must act like a private enterprise firm and yet hamper it in ordinary commercial considerations. It was time that the Transport Tribunal was wound up and the railways allowed to make what charges they thought fit.

Mr. E. Popplewell (Newcastle-upon-Tyne, W.—Lab.) said that for the Minister and the Commission to talk about breaking even in the short period of time with a modernisation plan was wishful thinking. Mr. Watkinson was the "dead hand" responsible for placing the Commission in an absurd position.

Harmful Transport Policy

Mr. G. R. Strauss (Vauxhall—Lab.) said the Parliamentary Secretary and the Minister had tried to take great credit for backing the modernisation scheme, but had they any choice ? The amount of the losses was well known, but the benefits of having an efficient railway system were incalculable.

The indictment was that in the past the Government had adopted policies which had often damaged the transport system and undermined its solvency, and restricted the services they could and should give. Those policies had been often irresponsible, and frequently had been irreconcilable. Now the Government was overtly adopting the dangerous policy of the balance sheet and not service to the nation as the thing that really mattered.

Liabilities Not to be Ignored

The Minister, Mr. Harold Watkinson, said that, unlike the Opposition, while the Government accepted the difficulties of the B.T.C. capital liabilities, it did not believe that these were things just to be ignored. They were large sums of public money. The Government had taken the judgment of Sir Brian Robertson and his colleagues on the course of the railway industry and supported them in what they thought was right.

The Opposition had alleged that the nationalisation plan and the cuts were the result of Government pressure. He had consulted Sir Brian Robertson, who had

asked him to say that the plan was put forward as the best judgment that the Commission could make, entirely on its own initiative, entirely supported by the Commission, by the Area Boards, and by the senior executives. It represented their best judgment on their future, on which they asked the Government's support. That was a complete answer to the allegations that a Minister of Transport in a Conservative Government exercised improper pressure on the Commission.

He made no apology for saying to the Commission from time to time that they ought to keep fares and charges as low as they reasonably could. If the charge was that the Government had made its attitude plain on fares, then he did not regard that as being anything other than the natural duty of a Government that wanted to keep prices stable and halt inflation.

Regional Autonomy

The Government's policy and practice were plain. It did not intend to throw the industry back into the melting pot with some great attempt to denationalise the whole thing, but it intended to decentralise and make it more efficient.

It was beginning to dawn on the Opposition that nationalisation as a theory of management was unsuitable today. It had nothing to do with the politics of the issue. It was merely that it was unworkable in practice. The Opposition intended to go back to the full rigours of its nationalisation policy, but he could not see how that could do anything for the railways in their present circumstances.

What the Opposition was not prepared to accept was that, because it was not unduly doctrinaire, the Government had developed in the railways and other nationalised industries a decentralised and better managed unit, which if allowed to go forward would in the end turn the nationalised industries into something that might do the country a little bit of good instead of being millstones round their necks.

The Government would hope to go further with the policy of decentralisation and greater Regional autonomy, giving greater chance of railway Regions running their own affairs in their own way, subject only to broad policy control at the top.

The amendment was rejected by 304 votes to 230—Government majority, 74, and the motion was agreed to.

Questions in Parliament

Former G.C.R. Main Line

Mr. B. Janner (Leicester S.E.—Lab.) asked the Minister of Transport & Civil Aviation on July 29 what would be the effect of the proposals contained in the re-appraisal of the railway modernisation plan on the passenger services between Leicester and London on the former Great Central Railway line.

Mr. Richard Nugent, Joint Parliamentary Secretary, stated in a written answer that the B.T.C. had indicated that modernisation would greatly improve main-line services between London and Leicester.

Goods Train Casualties

Mr. James Johnson (Rugby—Lab.) asked the Minister of Transport & Civil Aviation on July 30 how many persons were killed or injured in accidents involving goods trains on British Railways during 1958 or the latest year for which statistics were available; and whether he would give similar figures for accidents involving freight vehicles on British roads, and an estimate of the total quantity of goods carried.

Mr. Harold Watkinson, in a written answer: The latest available figures of train casualties are for the year 1957 when 112 were killed and 962 injured. There is no distinction between those in accidents involving goods trains and other casualties on the railways. It is estimated that in 1957 about 1,650 persons were killed and 59,100 injured in road accidents involving goods vehicles. It is not known what quantities of goods were carried on the roads.

U.I.C. Film Meeting, Oslo

The annual meeting of the Railway Films Committee of the International Union of Railways (U.I.C.) was held in Oslo recently on the invitation of the Norwegian State Railways. Fifteen railway administrations were represented, a larger number than at any earlier meeting. They included the Finnish, Yugoslav and Polish State Railways, besides those which have attended in previous years.

Documentary and instructional films provided the major part of the more than 30 films exhibited, besides a few primarily of a publicity character.

Exchange of views between the railway film experts is reported to have proved of considerable value over the years in assessing the value of colour, music and the approach to the objectives desired from railway films.

The Swiss Federal Railways are the Chairman administration for this U.I.C. activity. At the Oslo meeting a British film, " Diesel Train Ride," was the subject of considerable praise, heading the list in the publicity category.

New Numbering for Main-Line Electric Locomotives

British Railways are to adopt a new numbering system for all new main line electric locomotives, using the prefix letter " E " in a series ranging from E.1000 for a.c. units, and from E.5000 onward for d.c. The first figure of the a.c. series only will give an indication of horse-power, for example, E.2001 for a locomotive in the 2,000-h.p. range, and E.3001 for one of the 3,000-h.p. range.

The 24 2,500-h.p. d.c. locomotives being erected at British Railways locomotive works at Doncaster for the Southern Region Kent Coast electrification, are numbered in the E.5000 series. The first a.c. locomotive to be numbered under the system is the converted Metro-Vick. gas-turbine locomotive, now in use as an a.c. electric testing and training unit on electrified sections of the Manchester-Crewe line, which temporarily was numbered E.1000 and will now become E.2001.

The 100 main line a.c. locomotives for which orders valued at £6 million were announced in March 1957 will have numbers ranging from E.3001 to E.3095 for the Type "A" locomotives, and from E.3301 to E.3305 for those of Type " B." The Type "A" units are designed to haul express passenger trains of up to 475 tons at speeds of up to 100 m.p.h., or mineral trains of up to 950 tons at 55 m.p.h.; and the Type " B," with a maximum speed of 80 m.p.h., will be capable of hauling mineral trains of up to 1,250 tons at 55 m.p.h. Both types will be of 3,300 h.p., differing only in their gear ratios.

The orders announced in March 1957 were for 60 locomotives of Type "A" and 40 of Type " B ", but following a re-assessment of traffic requirements, 95 of Type "A" and five of Type " B " now are to be delivered. The numbers allocated to individual locomotives will not be altered if the unit is subsequently changed from Type "A" to Type " B," or vice versa, by a change of gear ratio. The numbers allocated are shown in the accompanying table.

Railway Students' Association Convention

The second phase of the golden jubilee celebrations of the Railway Students' Association covered the period July 11-19. A party of 62 members, accompanied by the President, Mr. A. B. B. Valentine, Chairman of the London Transport Executive, assembled at York on July 11, were met by Mr. H. A. Short, General Manager, British Railways, North Eastern Region and visited the large and small exhibits in the railway museums, conducted by Mr. R. J. Hunter on behalf of Mr. J. H. Scholes, Curator of Historic Relics, B.T.C.

Mr. Short entertained the party to tea at the station dining room, after which they left for Newcastle for their residential headquarters in the Henderson Hall of the University of Durham. On July 12 an excursion was made to Ullswater Lake via the Newcastle and Carlisle line and Penrith.

Mr. J. H. M. True, Traffic Manager, Tyne & Wear, North Eastern Region, on July 13 read a paper on railway modernisation on Tyneside. The President took the chair, supported by Mr. A. A. Harrison, Chief Freight Officer, British Railways Central Staff and Mr. C. E. R. Sherrington, Director, Research Information Division, B.T.C., both Vice-Presidents of the Railway Students' Association. Mr. Valentine, introducing Mr. True, referred to the past occasion when the Association had visited the North East, where, he said, an outstanding part was played in the evolution of the partnership between industry and transport.

NUMBERS ALLOCATED TO BRITISH RAILWAYS NEW ELECTRIC MAIN-LINE LOCOMOTIVES

Builder	Description or Type	Quantity	Numbers Allocated
A.C. Locomotives			
Metropolitan Vickers Electrical Co. Ltd.	Converted Gas Turbine	1	E.2001
British Thomson-Houston Co. Ltd....	"A"	23	E.3001—E.3023
English Electric Co. Ltd.	"A"	12	E.3024—E.3035
General Electric Co. Ltd.	"A"	10	E.3036—E.3045
Metropolitan Vickers Electrical Co. Ltd. ...	"A"	10	E.3046—E.3055
British Railways Works (Doncaster)	"A"	20[1]	E.3056—E.3075
British Railways Works (Crewe)	"A"	20[1]	E.3076—E.3095
British Thomson-Houston Co. Ltd....	" B "	2	E.3301—E.3302
English Electric Co. Ltd.	" B "	3	E.3303—E.3305
		Total 101	
D.C. Locomotives			
British Railways Works (Doncaster)	—	24[2]	E.5000—E.5023

(1) Electrical Equipment by B.T.-H.
(2) Electrical Equipment by English Electric.

At the invitation of the Tyne Improvements Commission, the party inspected the iron ore discharge plant at Tyne Dock, where ore is mechanically transferred from ship to specially constructed wagons for transit to steelworks at Consett. On July 14 the party visited the Lackenby beam mill of Dorman Long & Co. Ltd., at Grangetown. Later they visited Newport marshalling yard and the new Thornaby motive power depot. Next day visits were paid to the N.E. Region coal staiths at Blyth and the railway control equipment at the Lynemouth Colliery. The afternoon programme comprised visits to the Tanfield Incline where wagon movements up and down the incline were demonstrated and to the British Road Services new depot at Team Valley.

On July 16 the party travelled to Edinburgh where they were entertained to luncheon by Mr. James Ness, General Manager of the Scottish Region and a Vice-President of the Association. During the afternoon, a tour was made of the Forth Bridge, and of the new diesel maintenance depot at Leith.

Indian State Railways Annual Dinner

The annual reunion and dinner of the officers of the Indian State Railways (India and Pakistan) was held at the Rembrandt Rooms, London, S.W.7, on June 12.

Mr. Norman Calder, for many years Honorary Secretary of the reunion and dinner, took the chair at dinner. In the course of a brief address he named those officers who had passed away since the last reunion: *E.I.R.:* Messrs. C. Ayers, H. Braybrooke, P. Hackforth, P. L. J. Hands; *G.I.P.R.:* E. J. Dibben, L. Hyde, H. J. Molyneux, H. P. Renwick; *M.S.M.R.:* J. E. Comerton, R. H. Warde; *N.W.R.:* E. P. Gildea, J. McKinnon; and *O.T.R.:* Sir James Williamson.

Mr. J. M. Fenton, formerly Deputy General Manager, Works, East Indian Railway, who before his retirement from the Indian State Railway service in 1947 had been on special duty preparing the Mokameh Ganges Bridge project, proposed the toast of the railways of India and Pakistan.

He then described some features of the bridge at Mokameh. The Chairman of the India Railway Board, Mr. P. C. Mukerjee, had generously invited him to the opening of the Mokameh Bridge on May 1 by Mr. Jawaharlal Nehru, the Prime Minister of India.

In November, 1945, Mr. Fenton was put in charge of the project, charged to select a site for a road-rail bridge at or near Patna or near Mokameh. His report was submitted in April, 1947, and firmly recommended the Mokameh site. As the Bihar Government and the Patna industrialists favoured a bridge at Patna, the Ministry of Railways had model experiments on the Mokameh site undertaken at Poona. These confirmed in all important particulars the recommendations of Mr. Fenton's project report, but controversy persisted until argument was ended by the confirmation of the issue by Sir Mokshagundam Visvesvaraya.

Work on the bridge began in 1955. By then the north channel at Mokameh, the development of which was predicted both in time and in degree in the report, presented a hard problem, as not only had it to be sealed, but the north approach embankment, besides the single training bund, also had to be completed in the same working season. This was done.

The depth of the wells was considerable, the well curbs being something like 200 ft. below flood level. This foundation depth was thought to be the greatest for any bridge in the world. The wells allowed for a minimum embedment of 65 ft. under worst scour conditions.

Girders

The project report recommended spans of approximately 400 ft., to give the correct economic relationship between the cost of the piers and that of the variable steelwork in the spans themselves. The bridge was built with 14 main spans of 397 ft. centre-to-centre of bearings and two shore spans at each approach 104 ft. 9 in. centre-to-centre of bearings. The lower deck accommodates a single broad-gauge track and the upper deck a roadway flanked by two footpaths. A new B.G./M.G. transhipment yard has been constructed at Barauni on the north bank of the river, replacing the transhipment yard on the south bank at Mokameh Ghat.

The design of the girders was detailed by Freeman Fox & Partners. Copper-chrome high tensile steel formed the major make-up of the girders. It was probable, Mr. Fenton thought, that the bridge now under construction across the Brahmaputra at Pandu would be girdered with spans of very similar design.

Mr. Calder expressed the thanks of all concerned to Mr. Fenton.

Sir Leonard Wilson, President of the Committee, thanked those whom he termed the more active members of the Committee for their work. He paid tribute to the work of Mr. Calder as Secretary over many years.

Improvements Through Work Study

The Principal of the British Transport Commission Work Study Training Centre at The Grove, Watford, Mr. A. G. Kentridge, cited examples recently, from various fields of the Commission's activities, of successful applications of work study to jobs which were various and sporadic in nature. Work study of mass production, he stated, was not a serious problem.

At Reading General passenger station, British Railways, Western Region, a study was made of porters' duties. A team of six researchers, with occasional assistance from additional staff, was able to show that on average porters were employed one-third of the time, with tight demarcation. The team recommended a reduction of staff to about 96, with more cleaning and 65 per cent of time used.

The new working was introduced with a bonus scheme, and the men made superfluous were found other jobs. It is reported to have worked well since last autumn, after a couple of weeks of what Mr. Kentridge called "chaos," sometimes for unexpected reasons. For example, lift porters had much less knowledge of the station than parcels porters had, and were at a loss when asked to help them. The new arrangement will save some £18,000 a year after allowing for the bonus, and can be applied to almost any station.

Other examples of economies achieved by work study implemented with bonus schemes and union co-operation include the cutting down of track maintenance gangs from seven to five, doing half as much work again; a 30 per cent reduction in men on signal maintenance, the others being sent to renewals, with output a man more than doubled and the number of faults cut by half, saving £600,000 a year. A cut in handling costs was achieved at Parkeston Quay, Harwich, Eastern Region, from 55s. to 40s. a ton or less in many cases, with more ships attracted to the more efficient port. As a result the Dutch authorities invited a B.T.C. work study team to examine working at the Hook of Holland.

Diesel Train and Railbus Services in Lanarkshire

Two-car diesel trains and diesel railbuses replaced steam trains on several services in Lanarkshire, in the Scottish Region of British Railways, on July 6. The new trains and railbuses, based on Hamilton, serve also Coatbridge, Holytown, Motherwell, Blantyre, Strathaven, Lesmahagow and Coalburn. In addition, some steam services from Glasgow Central to the Cathcart Circle, East Kilbride, Uplawmoor, Kirkhill, Hamilton and Lanark have been replaced by diesel trains.

On the Hamilton to Strathaven and Coalburn line an additional train leaves Hamilton Central at 10.50 a.m. for Larkhill and Stonehouse, thence on Saturdays to Blackwood, Lesmahagow and Coalburn and on other weekdays to Strathaven. A new train leaves Hamilton Central at 3.25 p.m. daily for Larkhall, Stonehouse and Strathaven. There are corresponding return workings.

New services from Hamilton to Motherwell and Holytown are at 12.17 p.m. Saturdays only, 6.37 p.m., daily and 9.50 p.m., Saturdays only. From Holytown to Motherwell and Hamilton there are additional services at 9.20 a.m. and 11.33 a.m. daily, and 1.13 p.m., 8.38 p.m. and 10.55 p.m. on Saturdays only; also at 7.37 p.m. except Saturdays.

The twin-car sets working these services were built by Cravens Limited, Sheffield. A description of similar stock built by this firm for the North Eastern Region was published in our October 12, 1956, issue.

The two diesel railbuses stationed at Hamilton were built jointly by Bristol Commercial Vehicles Limited, and Eastern Coach Works Limited, Lowestoft. They were described in our issue of August 22, 1958.

More Parking Space at South Woodford Station, L.T.E.—An extension has been opened to the car park at South Woodford Station, on the Central Line of London Transport Executive. It holds 10 cars and is near the goods yard entrance. Previously only four cars could park at the station, in the forecourt.

Trade and Industry Urged to Use Railways.—The Chairman of the Scottish Area Board, British Transport Commission, Sir Ian Bolton, addressing the Glasgow Chamber of Commerce recently, made a strong appeal to trade and industry to give their active support to British Railways, which, he stated, were spending very large sums on modernising their equipment to provide the services which trade and industry said they needed. Nearly everyone agreed that railways were essential to the prosperity of the country, but the use made of the railway system was not only unbalanced but well short of its economic capacity. Now, when a great deal of money was being spent on modernising the system, it was most desirable that trade and industry should indicate what sort of railway they were prepared to use. If the railways failed to provide a proper economic service, they must be told. Railways in Scotland had reached a critical point when Scottish industrialists must give a much clearer idea of the extent to which they were going to be used in the future so that the Commission could plan and build a modern railway in the firm knowledge that it would be used.

Contracts and Tenders

Earthworks for Bukonte-Jinja cut-off, East African Railways

East African Railways & Harbours has awarded a contract for earthworks on the Bukonte-Jinja rail cut-off to Stirling-Astaldi (Uganda) Co. Ltd. The contract, valued at £321,000, involves the moving of some 2,000,000 cu. yd. of earth and rock over the 46.2 mile project which will shorten the line between Tororo and Jinja by 45.3 miles. Work will start on September 1, and should be complete by September 30, 1960. The plate-laying will be undertaken by direct labour under the E.A.R. & H. Resident Engineer, Mr. J. G. Jackson. The line is expected to be open for traffic by mid-1961.

The Victorian Government Railways has placed a contract with Bradford Kendall Limited, Alexandria, Sydney, for the supply of bogie frames and parts for 30 "Harris Trains," the first of which is expected to go into service in January, 1961. The contract is valued at £385,000. The bogies will be assembled in departmental workshops, and the first delivery is expected by November, 1960. The 30 seven-car "Harris Trains" are estimated to cost some £7,500,000. The 120 trailer cars will be constructed by the Railways.

Contracts were placed earlier this year with Martin & King Pty. Limited for 90 motor coaches without bogies, and with the English Electric Co. of Australia Pty. Limited for 90 motor coach and 120 trailer car sets of electrical equipment, including such items as traction motors, motor generators, pantographs, air compressors, and control gear.

An order for 12 hopper wagons Type "Y-7" has been placed by the South African Railway Administration with Alpheus Williams & Dowse Limited of Johannesburg. The contract price is £28,083.

British Transport Docks has placed an order with Charles Hill & Sons Ltd., Bristol, for the construction of two diesel-propelled grab hopper dredgers for use at the South Wales Docks.

British Railways, Eastern Region, has placed the following contracts:

W. & C. French Limited: provision of steel sheet piling along North Soak Drain, between Crowle and Althorpe

Pitchers Limited: provision of changeover station at Cheshunt

Oldfield & Schofield Co. Ltd.: supply and delivery of one 4-ft. carriage and wagon wheel turning lathe for Stratford Carriage Works

General Electric Co. Ltd.: supply and delivery of equipment required in connection with a.c. conversion at Chadwell Heath and Stratford substations.

British Railways, London Midland Region, has placed the following contracts:

William Townson & Sons Ltd.: amenities block at Manchester London Road Station

Henry Tattersall Limited: installation of accelerated L.P.H.W. heating and hot water services and ventilation in the new amenities block at Birkenhead Central Carriage Shed

Young, Austen & Young Limited: heating alterations and ventilation in the Examination and Repair Shop, Crewe Works

E. B. Jones & Rawlinson Limited: new prefabricated Station Buildings at Sandbach, Holmes Chapel, Goostrey, Chelford, and Mauldeth Road Stations

J. B. Corrie (Flextella) Limited: 1959 fencing programme, Manchester district

Trollope & Colls Limited: building work for new lifts at Wilson Street Warehouse, Broad Street Goods Station, London, E.C.2.

British Railways, Scottish Region, has placed the following contracts:

John Boyd & Co. (Engineers) Ltd.: two 400 ft. long electrically-driven woodslat conveyors, Sighthill new goods station, Glasgow

Blackburn (Dumbarton) Limited: contract for infilling behind retaining wall, Sighthill new goods station, Glasgow

Motherwell Bridge & Engineering Co. Ltd.: four 40,000 gal. oil storage tanks, Haymarket motive power depot, Edinburgh

Lansing Bagnall Limited: two fork lift trucks, Dundee Tay Bridge goods station

Murdoch MacKenzie Limited: substructure and superstructure for bridge widening, Bridge of Allan

Siemens & General Electric Railway Signal Co. Ltd.: provision of automatic warning control, Airdrie to Kelvinhaugh

P. & W. McLellan Limited: supply and erection of footbridges.

British Railways, Southern Region, has placed the following contracts:

The Limmer & Trinidad Lake Asphalte Co. Ltd.: resurfacing and surface dressing of roads, footpaths, and platforms, Eastleigh district

W. H. Gaze & Sons Ltd.: surfacing of car park, Farncombe

Johnson Bros (Aylesford) Ltd.: resurfacing and surface dressing of roads, London (Western) district.

Holloway Bros. (London) Ltd: permanent way alterations for electrification of sidings, Bricklayers' Arms

Mould & Blaydon Limited: extension of central heating, Nine Elms Depot

The Fairfield Shipbuilding & Engineering Co. Ltd.: supply and delivery of steel and ironwork for new carriage inspection shed, Ramsgate

C. & C. J. Pannett: new compressor house Newhaven Harbour Carriage & Wagon Depot

Roads Reconstruction (1934) Limited: resurfacing and surface dressing of footpaths and platforms, London (Western) district

W. H. Gaze & Sons Ltd.: resurfacing and surface dressing of footpaths and platforms, London (Eastern) district

British Railways, North Eastern Region, has placed the following contracts:

Etchells, Congdon & Muir Limited: supply, delivery, and erection of an electric passenger lift in the new traffic office, Middlesbrough

Stewart Maggs Limited: installation of electrical equipment for lighting and power supplies at Leeds Neville Hill Motive Power Depot

William Latimer & Co. Ltd.: cleaning and painting of station buildings, signalboxes, and signal gantries on the Darlington-Saltburn, Leeds-Newcastle, and Fighting Cocks Branches

A. Monks & Co. Ltd.: construction of earthworks and drainage work at the Newport new marshalling yard

Roll Race Conveyors Limited: supply, delivery, and erection of two "Squeeze" type rail conveyor units and ancillary equipment at the Dinsdale rail welding depot

Wellerman Bros. Ltd.: reconstruction of the superstructure of bridge No. 1 at Park Street, Hull.

The London Transport Executive has placed a contract with Whyatt (Builders) Limited for enquiry offices, bus queue shelters, a tea bar and terrace for public use, and a staff canteen, at Crawley Bus Station. The value of the contract is some £24,500 and the work is due for completion in 36 weeks.

The Special Register Information Service, Export Services Branch, Board of Trade, has received calls for tenders as follow:—

From South Africa:

4 well wagons type "U.16" and components

3 well wagons type "U.17" and components.

The Issuing Authority is the South African Railways Stores Department. The tender No. is B. 7770. The closing date is September 4, 1959. Local representation is essential. The Board of Trade reference is ESB/13634/59.

From Portuguese East Africa:

18 items of locomotive spares including journal boxes, vacuum cylinders, coupling mirrors, pivot plates, traction gear, boiler, and tyres.

The Issuing Authority is the Ports, Railways & Transport Department, Lourenco Marques. The tender No. is 144/59. A provisional deposit of Esc: 65.000 must be made by tenderers. The closing date is August 31, 1959. Local representation is essential. The Board of Trade reference is ESB/16347/59.

From Sudan:

20 wagon underframes 35 ft. long.

The issuing authority is the Controller of Stores, Sudan Railways, Atbara. The tender No. is 1955. Specifications and drawings can be obtained from the Office of the Controller of Stores on application. Prices should be quoted on both f.o.b. and c.i.f. Port Sudan basis, and tenders must be valid for two months from the closing date. The closing date is August 24, 1959. The Board of Trade reference is ESB/17376/59.

From Pakistan:

400 split cotters, M.S. for stud bolts

40 crossings, broad gauge, 1 in 12, 90 lb. "R" FFBSS rails complete

23,651 fish plates, 90 lb. FBBSS

16 bolts, M.S. square head with nuts and washers for crossing, 9 in. × 1 in.

600 bolts M.S. for level crossing guard rules, square head, 6½ in. × ⅝ in.

The Issuing Authority is the Department of Supply & Development, Government of Pakistan. The tender No. is DS/M-IX/5026/H. Bids should be sent to the Deputy Director General of Supply & Development, Chittagong. The closing date is August 24, 1959. Local representation is essential. The Board of Trade reference is ESB/17947/59.

The New Zealand Government Railways has called for tenders for the supply of 500 all-steel "Kc" class four-wheel covered wagons. They will be of a new design, special attention having been paid to the efficient pallet-loading of goods. Previous wagons of this type in New Zealand have had bodies of timber construction and, 200

more are to be built at the Otahuhu and Addington Workshops. At March 31, 1959, a total of 735 wagons of various types were outstanding on current orders. A further 3,180 wagons, in addition to the 700 " Kc " class, are included in the building programme for the next five years. This programme includes 300 four-wheel flat-top wagons, " Nc " class, specially designed for the conveyance of packaged timber.

Further details regarding the above tenders, together with photo-copies of tender documents, can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1).

Notes and News

Maintenance of G.E.C. Generators by Wild-Barfield Electric Furnaces Limited.—The General Electric Co. Ltd. and Wild-Barfield Electric Furnaces Limited have jointly announced that the repair and maintenance service for all G.E.C. valve-operated high-frequency generators is now being carried out by Wild-Barfield Electric Furnaces Limited from its works at Otterspool Way, Watford By-Pass, Watford, Herts.

Longer Trains on L.T.E. Circle Line.—A start has been made on the London Transport Executive plan to lengthen all Circle Line trains to provide additional passenger accommodation. Fourteen trains are employed in the service. The first of these has just been lengthened from five to six cars. The rest are being lengthened as new deliveries make the extra stock available. On weekdays, some 260 train trips are run round the Circle Line every day and the lengthening will mean 44 more seats per trip.

New Expresses between Paddington and South Wales.—British Railways, Western Region, recently introduced a new pair of restaurant car trains between South Wales and Paddington on Mondays to Fridays. The up train leaves Swansea at 7.30 a.m., calls at Neath at 7.45, Port Talbot at 8, Bridgend at 8.20, Cardiff General at 9, and Newport at 9.20 a.m. and arrives at Paddington at 11.50. The down express leaves Paddington at 2.55 p.m., calls at Reading at 3.36, and arrives at Newport at 5.22, Cardiff General 5.41, Bridgend 6.19, Port Talbot 6.41, Neath 6.50, and Swansea at 7.10 p.m.

Western Region London Lecture & Debating Society.—This society was founded in March, 1904, to discuss transport. Programmes include lectures on railway subjects at home and abroad and on commercial and industrial matters. The current session includes addresses by Mr. C. W. Rodd, Member of the Western Area Board of the British Transport Commission; Mr. A. R. Dunbar, Manpower Adviser, B.T.C.; Maj.-General Ll. Wansbrough-Jones, Secretary-General, B.T.C.; Mr. F. D. Arney, General Manager, Port of Bristol Authority, and papers on a visit to the U.S.S.R., Modernisation in the Civil Engineering Department and Traffic Problems and progress. Discussion will be invited from men under 35 years of age on the motion, "The scope for further research as a means of securing greater efficiency and economy in railway operations." The best contribution will receive a book token for £3 3s., and second and two consolation prizes will be book tokens of £2 2s. and £1 1s. respectively. Books selected by prize-winners will be inscribed and presented at the annual general meeting. Other activities during the session will include a railway quiz. Meetings are held in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, at 5.45 p.m. on alternate Thursdays from October to March. Annual subscription is 1s. Country members wishing to attend occasionally can obtain free tickets at the discretion of the head of department. Application for membership should be made to the departmental or area delegate or to the Hon. Secretary, Mr. G. E. Snelling, General Manager's Office, Paddington.

Westinghouse " Introduction to Industry " Course for Schoolboys.—At the Chippenham Works of the Westinghouse Brake & Signal Co. Ltd., the next " introduction to industry " course will be open to boys taking "A" level scientific subjects at grammar and public schools. It is of one week's duration, August 24-28. These courses are designed to give boys an insight into the engineering industry: how it works, the training facilities available and future prospects.

Appeal Won Against Fine for Pulling Communication Cord.—Miss Pamela Berry, of Brighton, a former actress, succeeded in an appeal at Brighton Quarter Sessions against a £1 fine and £1 7s. 6d. costs imposed on her by Brighton magistrates in February for pulling a train communication cord. She was also awarded £15 15s. costs. She stated that she had pulled the cord because she was being molested by a man, who was subsequently fined £3 by the magistrates for interfering with her.

Sir Brian Robertson's Visit to Southern Region.—The accompanying illustration shows the Chairman of the British Transport Commission, Sir Brian Robertson, with a Master of one of the Isle of Wight motorcar ferries plying between Portsmouth and Fishbourne, during a recent two-day tour of installations in Hampshire and the Isle of Wight. On his right is Mr. K. W. C. Grand, member of the Commission. Sir Brian Robertson flew over the Isle of Wight in a helicopter to visit works at Bembridge Harbour. He also visited the Locomotive & Carriage Works at Eastleigh, British Railways, Southern Region, and the Apprentices School there.

Hartford Goods Depot to be Closed.—Hartford Goods Depot, between Crewe and Warrington, London Midland Region, was closed on August 17. Alternative arrangements for freight traffic will be made at Northwich or Hartford & Greenbank stations and livestock will be dealt with at Hartford & Greenbank or Acton Bridge at traders' preference. Coal class traffic will be dealt with as consigned by senders.

Operation of " Fitted/Unfitted " Brake Switches.—In connection with the brake operation on the British Railways Type " 2 " diesel-electric locomotives built by the North British Locomotive Co. Ltd. and described on page 566 of our May 15 issue, the description of the fitted/unfitted switch is incomplete and may cause misunderstanding as to its exact function and purpose. The action of the switch is to alter the times for build-up in the air cylinders. In the " unfitted " position for example, the filling time is extended. At no time when a full brake application is made, is there a reduction in the ultimate pressure reached in the locomotive brake cylinders. The air brakes on the locomotive described are of Oerlikon design and are supplied by Davies & Metcalfe Limited.

Australian Trades Unionists Visit Britain.—From July 14 to August 11 three Australian trades union officials toured their respective interests in this country. They were Mr. Frank Doyle, Trainee Divisional Manager, Australian Federated Union of Locomotive Enginemen in Brisbane; Mr. Glen Broomhill, Secretary, South Australian Branch, Miscellaneous Workers' Union in Adelaide, and Mr. David Ross, Assistant Research Officer, Federated Ironworkers' Association in Sydney. The visit, which was sponsored by the Commonwealth Relations Office, is the first of its kind since the war. For his part, Mr. Doyle travelled footplate from Oxford to Leamington Spa (the locomotive was one of the " Castle " class) and by sleeper from

Sir Brian Robertson and Mr. K. W. C. Grand with a Master of an Isle of Wight motorcar ferry at the Car Ferry Dock, Portsmouth

Newcastle to London; sat in on a Court of Inquiry, and visited Stewarts Lane Motive Power Depot on the Southern Region. He had praise for the Oxford train, in connection with which he was particularly impressed by the arrangements made for picking up water; for the A.T.C. signalling precautions on the Western Region; for the fair and individual treatment given at the Court of Inquiry, for the sleeping-cars on the Newcastle-London run, and for the training facilities at Stewarts Lane.

Mr. Donald Gordon at Margam Yard.—The accompanying illustration shows Mr. Donald Gordon, Chairman & President of Canadian National Railways, in the control tower of the British Railways, Western Region, new hump marshalling yard at Margam, South Wales. Mr. Gordon inspected railway installations during a visit to Britain. (Left to right) Mr. J. R. Hammond, General Manager, Western Region; Mr. Donald Gordon; Mr. A. W. Woodbridge, Signal Engineer, Western Region; Mr. J. C. Kenkel, European General Manager, Canadian National Railways; Mr. K. W. C. Grand, Member, British Transport Commission; and Mr. J. F. M. Taylor, District Operating Superintendent, Western Region, Swansea.

Mr. Donald Gordon with Mr. K. W. C. Grand, Mr. J. C. Kenkel, and officers of the Western Region in the control tower in Margam yard

More Stations and Depots Closed.—Recent closings of unremunerative stations on British Railways include, in the London Midland Region, Eskmeals, between Barrow-in-Furness and Whitehaven; Howe Bridge between Tyldesley and Wigan; Ledsham, between Chester and Hooton; Monsal Dale, between Millers Dale and Rowsley; and Cross Lane, between Manchester Exchange and Kenyon Junction. The goods line between Newfields Wharf and Greengate Sidings, near Tunstall, was closed on August 3. The goods and parcels depots at Tonge and Bredon, between Derby and Worthington, and at Weston-on-Trent, between Castle Donington and Chellaston, are to be closed on September 7, and Napsbury Station, between Radlett and St. Albans, on September 14. On the same date the North Eastern Region is to close Nostell Goods, Sandal, and Hare Park public delivery siding (all on Wakefield-Doncaster line); West Ord public delivery siding (Tweedmouth-Kelso); Pilmoor Goods (York-Northallerton); Enthorpe Goods (Selby-Bridlington); Burton Salmon (York-Sheffield) and Hambleton (Leeds-Selby), both for passenger traffic; and Lockington, including Kilnwick Siding (Hull-Driffield), Monk Fryston (York-Pontefract), and Sherburn Colliery (Durham-Leamside line). Arrangements have been made to deal with goods and parcels traffic as necessary, and bus services operate in the areas concerned. The local passenger train service between Doncaster, Barnsley Court House, and Penistone, in the Eastern Region, has been withdrawn. Wath Central, Wombwell Central, Dodworth, Silkstone, and Summer Lane Stations have been closed to passenger train traffic; facilities are retained, for the time being, for special excursion trains.

Publication of Winter Timetables Delayed by Printing Dispute.—Because of the recent printing dispute British Railways winter timetables, which normally appear at this time of year, cannot be produced until later. The start of the winter services has had to be postponed from September 14 to November 2. The summer timetables will continue for a little longer than usual. From September 14 the services will be modified to bring them into line as nearly as possible with the normal winter services. Details of the changes will be available shortly at all British Railways stations and offices. It is also hoped that each Region will be able to produce for the public a supplement to the existing timetables listing all the proposed cancellations and alterations. Passengers who may then still be in doubt about train services after September 13 are asked to look for special notices at their local stations, or to seek information at the nearest railway inquiry office.

Sanders & Forster's Standard Building Department Transferred.—Sanders & Forster Limited, reports that its Standard Building Department has been transferred from Head Office at Barking, to premises adjoining the branch-works at Warton Road, London, E.15. The new address is Walton House, Warton Road, London, E.15. Telephone number Maryland 3228.

Eastleigh Works Open Day.—The annual open day at Eastleigh Carriage & Wagon Works and Eastleigh Locomotive Works, British Railways, Southern Region, was on August 5. In the Locomotive Works visitors were shown steam locomotives being overhauled and electric ones under construction. In the Carriage and Wagon Works they could see the new trains being built for the Kent Coast electrification scheme. Admission to each works, 6d. for adults and 3d. for children, was in aid of the Southern Railway Servants' Orphanage & Homes for Old People at Woking.

Scottish M.Ps. Inspect Electrification Works.—The Chairman of the Scottish Area Board, British Transport Commission, Sir Ian Bolton, and the General Manager, British Railways, Scottish Region, Mr. James Ness, recently received a party of Scottish M.Ps., who were given an opportunity of inspecting the progress made in railway electrification in Glasgow and the Clyde Valley. The party visited an electrification exhibition showing models, plans, and maps of the scheme. After lunch at the North British Hotel, Glasgow, they made a tour by diesel railcar of the sections being electrified.

Extension of British Monorail Limited Markets.—New technical and sales agreements have been concluded on behalf of British Monorail Limited as a result of a visit to the United States by Mr. Eric Russell, Sales Director of Herbert Morris Limited, the Loughborough crane manufacturers who recently purchased a controlling interest in the company. During his visit, Mr. Russell negotiated new technical liaison and licensing agreements with the American Monorail Company, Cleveland, Ohio, who

New Station at Manchester London Road

Artist's impression of frontage and office block at Manchester London Road, London Midland Region, now under construction *(see editorial comment on page 34)*

have been in technical co-operation with British Monorail Limited for many years. The new agreements are part of a reorganisation scheme to promote the expansion of British Monorail Limited activities, now that it is in a position to offer a complete overhead materials handling system in conjunction with the products of Herbert Morris Limited.

North Eastern Region Information Boards on New Housing Estates.—British Railways, North Eastern Region, in association with the local authorities, has erected four-sided

North Eastern Region four-sided information board at Billingham

display boards which swivel on a single support on new housing estates in the residential suburbs of Stockton and Billingham. They provide information on special train services railway excursions, cheap tickets, and other holiday concessions. There is a reluctance to allow the normal type of advertisement board on the new estates and the further use of these new boards will depend on their success.

British Standard for Track-Circuit Capacitors.—A sub-committee has been set up by the British Standards Institute to draft a British Standard for capacitors for track circuits. The technical committee includes representatives from the British Transport Commission, London Transport Executive, British Electrical & Allied Manufacturers Association, Federation of British Industries, and the Ministry of Transport & Civil Aviation. It is expected that a draft for general comment will be circulated later this year.

Tank Wagon Explosion in the U.S.A.—Two tank wagons containing butane gas exploded on a bridge over the River Ogeechee near Meldrim, Georgia, in the U.S.A. recently. Many holidaymakers were swimming in the river below, and at least 19 are believed to have died and 70 injured as flames from the exploding wagons swept across the water. The last 26 wagons of the train caught fire, but the locomotive and wagons ahead of the explosion pulled clear. The cause of the disaster is not yet known.

New Amenities Building at Manchester Ardwick Carriage Cleaning Depot.—Work on the modernisation of the staff amenities and stores accommodation at Manchester Ardwick Carriage Cleaning Depot commenced on June 22. The new amenities building will include a messroom, drying and locker rooms, and washing and toilet facilities for the staff, and an office for the foreman. Two other buildings will be erected, one for the battery charging plant and the other as a store and workshop. Some 130 vehicles a day are cleaned, serviced, and maintained at Ardwick depot by nearly 80 staff. The work will cost £20,000 and is expected to be completed in six months. The contractor is E. B. Jones & Rawlinson Limited, Salford.

Birmingham Waterways Depot Wins Award as Best All-Round Depot.—An Annual challenge shield for best all-round Depot in British Waterways has been won for the second year running by the Sampson Road Depot, Birmingham, South Eastern Division. The award takes into account commercial success, general efficiency, drive and energy, good housekeeping, cleanliness, and appearance. The shield was presented recently by Sir Reginald Kerr, General Manager, British Waterways.

Brunel Exhibition Visited by Sir Brian Robertson.—The Chairman of the British Transport Commission, Sir Brian Robertson, visited the recent exhibition arranged at Paddington Station by British Railways, Western Region, to mark the centenary of the death of Isambard Kingdom Brunel, Engineer of the Great Western Railway. The accompanying illustration shows, standing before a portrait of Brunel, Mr. R. F. Hanks, Chairman, Western Area Board, B.T.C.; Sir Brian Robertson; and Mr. J. R. Hammond, General Manager, Western Region.

Sir Brian Robertson at the Brunel Centenary Exhibition at Paddington

Compoflex Warehouse in London.— Compoflex Co. Ltd., manufacturers of flexible tubing and hoses, announces opening of a London warehouse at Angel House, Pentonville Road, N.1, tel. Terminus 0533/4, where stocks will be held to provide speedier distribution to customers in London and the Home Counties. Included in these stocks will be a range of Pirelli long-length moulded rubber hoses, in accordance with an arrangement with the Pirelli Company of Milan, whereby Compoflex will in future undertake the marketing in the U.K. and Northern Ireland of certain long-length hoses made by the Italian company.

New Notting Hill Gate Station, L.T.E.—When the new Notting Hill Gate Station, on the Central and Circle Lines of London Transport Executive, described in our March 6 issue, was brought into use on March 1, the aluminium-alloy barrier and ticket collectors' booths in the booking hall had not been delivered and erected. The equipment has now been installed, as shown in the illustration below. The top flight of escalators and tobacconist's stall are in the background, and the plastic-and-glass booking office on right.

New Laboratory Opened for Department of Scientific & Industrial Research.—The Warren Spring Laboratory of the Department of Scientific & Industrial Research was opened at Stevenage, Hertfordshire, on June 29, by Lord Hailsham, Lord President of the Council. Two of the programmes previously carried out at the Fuel Research Station, Greenwich, have been transferred to the laboratory. They are research on atmospheric pollution, and synthesis of oil and chemicals by the Fischer-Tropsch process. The new laboratory is designed to handle work over a much wider field including chemical engineering and process development. The total cost of the establishment was some £620,000. Lord Hailsham said that he hoped the opening of the laboratory would settle the argument as to whether or not the country needed a national laboratory

Booking hall at Notting Hill Gate Station, L.T.E. (see reference above)

for research, basic and applied, in mineral processing. In that field they would undertake work in the national interest at the nation's expense, but they would also do work of industrial interest at industry's expense.

British Wagon Co. Ltd. Interim Dividend.—The interim dividend of British Wagon Co. Ltd. is 2½ per cent on doubled capital. Last year's interim of 5 per cent on smaller capital was followed by a second interim of 17½ per cent.

Drummond-Asquith (Sales) Limited Change of Name.—Asquith Machine Tool Corporation Limited has announced that the name of its subsidiary sales organisation Drummond-Asquith (Sales) Limited has been changed to Drummond-Asquith Limited. The Head Office of Drummond-Asquith Limited is King Edward House, New Street, Birmingham, with branch offices in London and Glasgow.

Additional Diesel Services in South Wales.—Diesel trains have been introduced by British Railways, Western Region, on services covering Carmarthen, Swansea, Cardiff, Newport and Bristol. The improved services include a train from Cardiff at 7.15 a.m. on Mondays to Fridays inclusive arriving at Bristol (Temple Meads) at 8.31 a.m., and a late evening train for Newport and Cardiff leaving Temple Meads at 10.20 p.m. and Stapleton Road at 10.27 p.m. each weekday. Between Cardiff and Swansea, additional services run on Mondays to Fridays from Cardiff at 1 p.m. and 10.20 p.m. and from Swansea at 12.35 p.m. and 3.15 p.m., calling at principal intermediate stations.

Export Express Freight Service to Grimsby Docks.—British Railways, Eastern Region, has introduced an export express freight service, similar to those operating to certain other ports, to Grimsby Docks. The facility offers traders an assured arrival for export traffic, in full wagonloads only, at Grimsby Docks on the morning following its despatch from the inland railway depot. It operates from Mondays to Fridays. Wagonloads for Grimsby Docks may be forwarded from any of the following depots: Sheffield Bridgehouses, Rotherham Central, Doncaster, Gainsborough Central, Lincoln Holmes, Bradford, Huddersfield, Leeds Wellington Street, Kings Cross, Manchester Ardwick, Nottingham London Road, Peterborough North, and Welwyn Garden City.

Railway Stock Market

Although stock markets remained active, a somewhat more cautious attitude has prevailed, after recent big gains, but profit-taking was followed by renewed demand for industrial shares, which remained the main feature. Hopes touched off by the possibility of easing of tension between the West and East has been followed by the suggestion that if there were slowing down of armaments work it could touch off an industrial recession in the U.S.A. Nevertheless it is mainly short-term considerations which are influencing stock markets at the present time, and, in particular, confidence in the City in a Conservative victory in the general election. The general belief is that stock markets are likely to remain strong and buoyant until the election comes, but that afterwards there would be a sharp reaction, whatever the election result.

Foreign railway stocks have attracted only moderate attention again. Antofagasta ordinary stock at 13¾ compared with 14 a week ago, and the preference stock was 23 compared with 24. Costa Rica ordinary stock at 14½ has been quite well maintained and Chilean Northern debentures kept at 60. International of Central America common shares were $21 and Paraguay Central prior debentures advanced to 24. Mexican Central "A" bearer debentures were again around 60. United of Havana second income stock again changed hands around 6, while San Paulo 3s. units were 1s. 6d. and Brazil Railway bonds 6. Guayaquil and Quito assented bonds were quoted at 80½.

Canadian Pacifics were $51¼ compared with $53 a week ago, and they give a not unattractive yield of 5¼ per cent on the basis of last year's dividend. White Pass shares were $14½. After news of receipt of the arbitration claim payment, Barsi Light Railway rose 6 to 30. West of India Portuguese Capital stock was 106½ and the debentures were 91½. Nyasaland Railways shares have changed hands around 10s. 6d. and the 3½ per cent debentures were 58½.

Shares of locomotive builders and engineers were inclined to strengthen. Beyer Peacock 5s. shares were 8s., Charles Roberts 5s. shares 11s. 4½d. and Birmingham Wagon 27s. 4½d. Gloucester Wagon 10s. shares have been well maintained at 17s. 6d. and Wagon Repairs 5s. shares were 8s. 3d. with G. D. Peters again quoted at 20s. 7½d. North British Locomotive were 13s. 3d. compared with 10s. 9d. a week ago.

Babcock & Wilcox at 53s. 6d. have held most of their recent good rise which was attributed partly to German buying. Pollard Bearing 4s. shares were 28s. 9d. at which there is a yield of only 3 per cent, but last year's dividend of 22½ per cent was earned 2½ times over; the moderate yield reflects hopes of higher dividend prospects. Ransomes & Marles 5s. shares were 21s. 4½d. and Renold Chain shares showed steadiness at 43s. Pressed Steel 5s. shares showed their usual activity and at 28s. 9d. compared with 27s. 3d. a week ago. Associated Electrical were 62s. compared with 55s. a week ago, General Electric 36s. 9d. compared with 36s. 3d. and English Electric 44s. 9d. compared with 41s., while Crompton Parkinson 5s. shares at 13s. 9d. were also little changed compared with a week ago.

Dowty Group 10s. shares fell back to 37s. 9d. following the chairman's annual statement. B.I. Cables were 51s. 6d. In other directions, Vickers have rallied to 32s. 3d., while a sharp advance to 30s. in Thornycroft shares followed vague take-over talk which, however, was entirely without confirmation. Coventry Gauge 10s. shares changed hands around 22s.

OFFICIAL NOTICES

Forthcoming Meetings

September 3 (*Thu.*).—The Model Railway Club, at Caxton Hall, Westminster, London, S.W.1., at 7.45 p.m. A talk on "My railway experiences," by Mr. R. Hardy.

September 4 (*Fri.*) to September 7 (*Mon.*).—The Institute of Transport, week-end course at Magdalen College, Oxford. Sir Reginald Wilson, Immediate Past President, will preside.

September 4 (*Fri.*).—The Railway Club, at the Royal Scottish Corporation, London, E.C.4., at 7 p.m. Paper on "The railways of Scotland, 1899-1959," by Mr. H. A. Vallance.

September 8 (*Tue.*).—The Permanent Way Institution, Leeds & Bradford Section, in the British Railways Social & Recreation Club, Ellis Court, Leeds City Station, at 7 p.m. Film show.